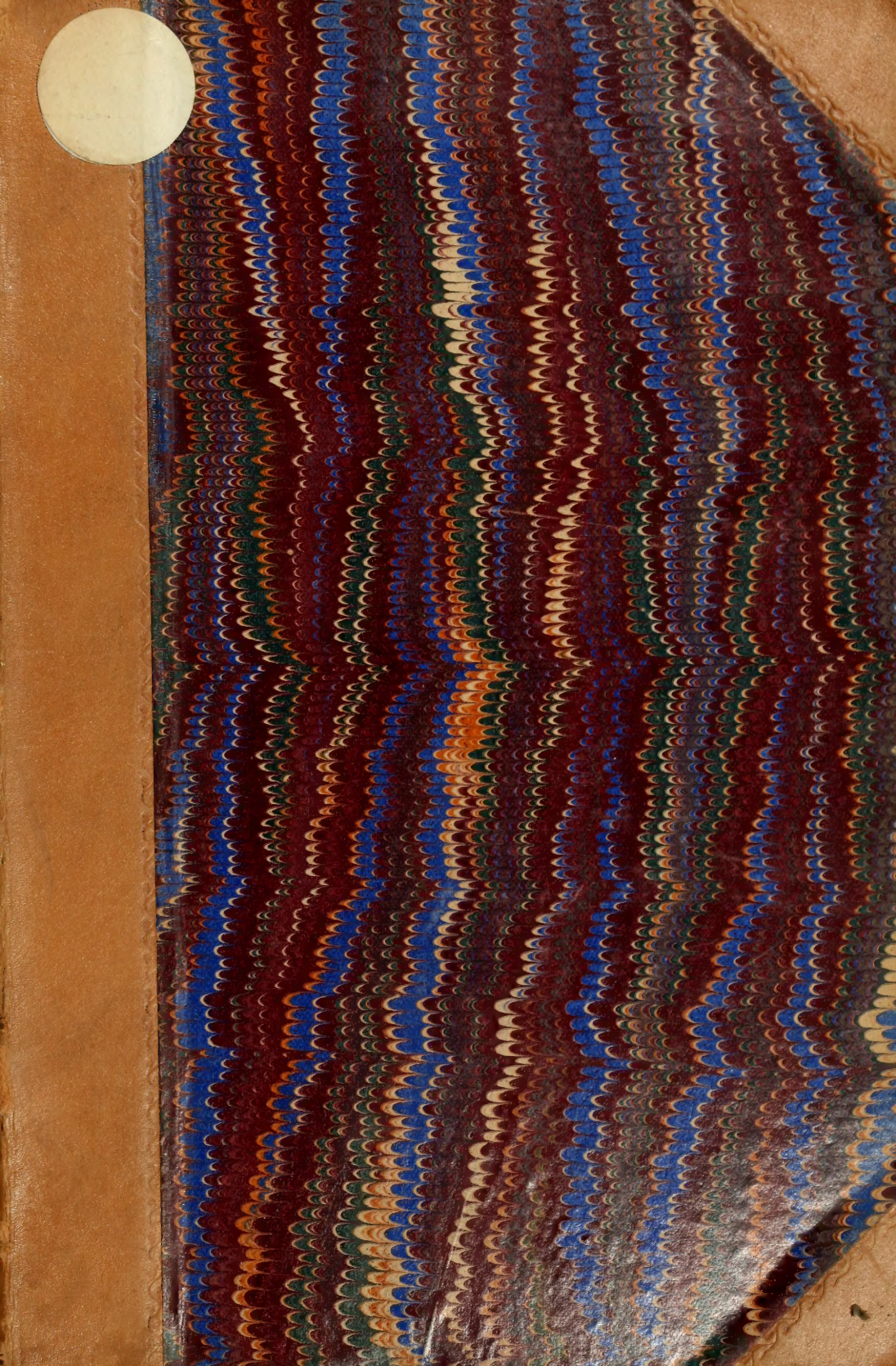




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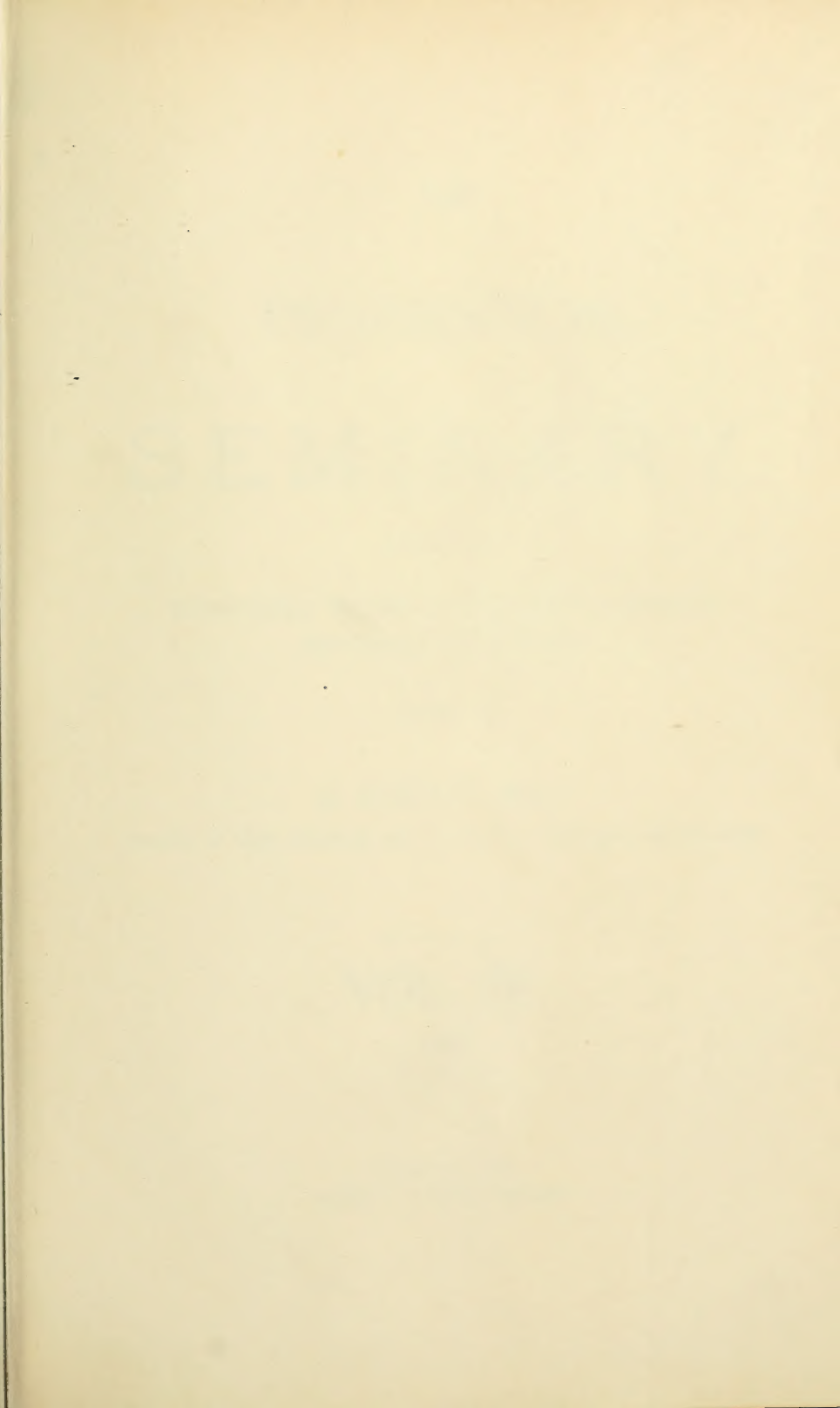
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THE
PEDAGOGICAL
SEMINARY.

A QUARTERLY

INTERNATIONAL RECORD OF EDUCATIONAL LITERATURE,
INSTITUTIONS AND PROGRESS.

EDITED BY

G. STANLEY HALL,

President of Clark University and Professor of Psychology and Education

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THE PEDAGOGICAL SEMINARY.

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VOL. IX.

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No. 1.

EDITORIAL.

In the first article, a graduate of Yale of more than ten years standing criticizes his alma mater as it was in his undergraduate days with great frankness. We presume he would claim to love her not less, but rather more, than those whose enthusiasm finds its chief vent in whooping forth the college yell. There is no doubt but that many and perhaps all of the older American colleges, though of course in quite different degree, need such faithful wounds of a friend. It is hoped they will have the philosophy to welcome this. Other such articles by representative graduates of other colleges concerning their own college, as they remember it, will follow.

Very interesting to specialists in the psychology of religion ought surely to be the spontaneous and untechnical opinions and sentiments of such an expert in laboratory and historical psychology as Professor Sanford.

The sphere of pedagogy is ever widening. The training of nurses has now gained sufficient prominence to merit a place in every complete survey of educational institutions. Important experience has already been acquired and lessons of great value to students of education can be gleaned in this field. A brief survey of it is given by an experienced lady physician, who is Superintendent of Nurses in a city hospital.

Professor Chamberlain follows with interesting and recent digests of the literature of child study, a field which he commands with his remarkably wide range of erudition.

Although much has been written on the history and methods of Jewish education, there is at present no brief and conspectively survey of the subject such as Mr. Ellis has here attempted with copious literature appended.

The Editor has brought together and inserted four of his recent addresses, three of which are devoted to present high school problems. One of these has already been printed elsewhere.

How the restless nature of the girl, and especially the boy, chafes against the sedentary and restrained life of the school is shown in a way which will have profound significance for all who are interested in the larger problems of education, in the plain history of a school day, jotted down without comment or moral by a competent hand.

The usual reviews and book notes follow.

A YALE EDUCATION VERSUS CULTURE.

BY HARLOW GALE,

Psychological Laboratory, University of Minnesota, Minneapolis.

Now that the Bi-Centennial Anniversary of the founding of Yale University has been celebrated with characteristic Yale spirit it may be profitable to sit down in the calm hour, to make an inventory of one's best head and heart life, and to try to estimate fairly how much of this life of culture a Yale graduate of some fifteen years standing owes to his Yale education.

As a measure of his intellectual life let us take the cosmic law of evolution, the greatest intellectual product of the last half century,—by the light of which every man of culture is accustomed to look at our most important social, political, educational, ethical, religious, and even literary problems. As to the wealth of biological evidence for this law scarcely any Yale student fifteen years ago ever heard of it; for only an occasional eccentric student dared to go out of the traditions of the college and take the little elective botany and zoölogy which had crept into the curriculum from the Sheffield Scientific School. And yet, by a strange anomaly, Yale sheltered in its Peabody Museum a wealth of evolutionary material which was known and honored throughout the scientific world; witness Huxley's eagerness to study it on his visit to America, and his immediate use of it in his New York and London lectures.¹ Yet not only was no instruction offered concerning this material, but we were never encouraged to visit it unofficially.

In geology we did get some perspective of evolution time and some observation knowledge of the cosmic forces in our Saturday afternoon geological tramps with a modest and marvelously energetic aged professor. But the only memory of his class room hours with us is a special series of lectures on the Harmony of Genesis and Geology, to which the theological students were summoned along with us seniors. Such a mere verbal and fantastic harmony as our peace-making and charitable professor was possibly able to make between a legend and a science was hailed by us Christians, as well as by the

¹ Life and Letters of Thomas H. Huxley, by his son. New York, 1900. Vol. I, pp. 495-497.

theologues of course, as a triumph of religion over science. This belittling of scientific knowledge as against religious revelation was at least the impression left upon us students, though we were never even then sure of just what were the geologist's really own beliefs.

The only other teacher from whom we ever heard anything of evolution introduced it in connection with sociology as a graduate study. And it is an interesting criterion of the college's ignorance and fear of evolution that, although he was the most admired and stimulating of the whole faculty, we students shared in a blind imitation way the suspicion of the college authorities which compelled him for some years to cease using Spencer's sociology.

Thus we graduated not merely in ignorance of the great wealth of wonderful evidence—in itself an education—for evolution, but with an indifference or narrow suspicion of it which has prevented most of us from getting any subsequent evolutionary knowledge. For if a reading census could be taken there is not the least doubt but that it would show that Yale men have read less than the average college men from the great culture storehouses in the lives and works of Darwin, Huxley, and Spencer, and their host of followers.

If another intellectual criterion be taken in the first-hand knowledge of any science or any cultivation of the scientific method and spirit, what of these did Yale give us? In the statistics of our class book "astronomy easily leads as the most unpopular study," its instructor was voted the hardest man to recite to, and he was the most generous in his distribution of conditions. Physics and chemistry, the only other required sciences in our course, were also rated very low, and the reason is seen in the method and spirit in which all these sciences were taught. In chemistry, *e. g.*, we had to learn the chemical formulas by heart like so many Chinese characters, before we had ever seen, touched, smelled, or tasted any chemical substance. This learning we struggled with every known device of promptings and cribs to give out again in recitations throughout the whole book. Having been thus refined by discipline, we were shown at the close of the term a few experiments at the dark end of a long low room, and by a voice mumbling almost inaudibly through its massive beard. Thus only the few conscientious classmates on the front benches got anything from these absolutely undemonstrative demonstrations, while the rest of the class sought the rear benches as they rose up to the ceiling, and there enjoyed the natural relief from our chemical catechism by yielding to the foul and hot air as we stretched out on the dark benches and slept.

We were put through physics in at least a more scientific

building; and, although the instructor was more animated and even bright, his keenness seemed to find its highest function in catching us in verbal contradictions to ourselves or to the text-book. Thus in none of these sciences was any apparent effort made to reveal the real stuffs, forces, and laws of nature to us and therewith to arouse a wonder and admiration of nature which should enlarge our petty intellectual Ptolemaic horizon to the modern gigantic Copernican scale. None of the applications of this scientific knowledge to the progress of civilization were put before us. The sextant, the eclipse expeditions, the analysis of foods and water, the process of photography, the construction of the telephone, camera, and microscope, we knew nothing about and, worst of all, cared nothing about as a result of our study of the sciences. It never occurred to us that the telegraph line, which we made, as a vent for some of our natural energy, to connect several of our college rooms together, had any connection with our catechism in physics. But very little of the mere rote knowledge, which we had been forced to learn from one text-book by the recitation method, ever survived the final examination as a permanent part of ourselves.

The mathematics, which were rather the father of the Freshman and Sophomore years trinity of studies, were also never taught in their proper place as the handmaid to civilization in getting at the culture knowledge of physics, astronomy, navigation, mechanics, engineering, and psychology; but were made unadulterated discipline in self-denial. But instead of being of any supposed disciplinary value for sound reasoning, the overwhelming preponderance of deduction and the cultivation of apodeictic dogmatism in mathematics make it a vicious training for our real inductive process and cautious balancing of probabilities in the actual knowledge of life.

Thus, as we got no scientific knowledge worthy of the name, we also got nothing of the scientific method and spirit which is of even more value in modern culture. For we never saw nor heard of any of our instructors doing any original work. If they did so, they could not have given us a higher blessing than the inspiration of seeing a teacher making advances in his science and learning somewhat of his methods of work and his modest contributions to human knowledge. For we had no idea how the material in our text-books had been laboriously gathered through centuries of individual work—we probably considered it as the result of contemplation and inspiration,—and they seemed to us dogmatic and finished treatises, just as we bought and sold the same text-books which had been passed down for years from class to class through the mediation of the second-hand book store. Conse-

quently we had no idea of the sifting of evidence, the patience and labor necessary thereto, no example or practice in the use of the inductive methods of disentangling this knotty world into its causal relationships and laws, and no cultivation of the critical spirit and caution which is so decidedly essential to any man's taking a place in this complicated civilization. Our student attitude may be gauged by the fact that the one pre-eminent contributor in the college to human knowledge was regarded by us as an eccentric creature who must be mentally unbalanced to so absorbingly devote himself and his private fortune to the collection and study of bones that he had not time to conduct recitations.

If, however, we make all fair extenuations for this farce of scientific instruction by the fact that it was fifteen years ago, how was it with our longer established heritage of English literature? The required rhetoric of freshman year was a standing joke among us with its laughable truisms, its repulsive artificiality, with the gaseous verbosity of Macaulay held up to us as the model of writing and speaking, and with our composition exercises for cultivating a literary style by forcing ourselves to write on subjects in which we had no knowledge or feeling. And the contrast of the ease of this English subject as against the grinding discipline in Latin and Greek tended to give us a contempt for anything in our own language. So that naturally the required learning in junior year of an excellent little book on the English language and a *Primer of English Literature* was considered the greatest snap in college. The professor, who we discovered long afterwards had much geniality, was evidently so bored by us and the ordeal he conducted that he showed no more interest or enthusiasm in his subject or in us than a nickle-in-the-slot machine. Thus we were never stimulated to read at first hand by buying and living with our own copies of Hawthorne, Dickens, Emerson, and Tennyson, nor even to make use of the college library. Though most of us strayed into the library, and roamed about some among the shelves, we very seldom found any of our instructors there as a good example to us; and though a very few students did an amount and kind of reading which was an education in itself, yet this was done in spite of the disciplinary pressure of the curriculum, which was purposely designed to monopolize us to the limit of our time and strength. An example of the conflict of this forcing system with the eternal attraction of good books is a memory of my reading that lovely idyl of *Silas Marner* on a Saturday afternoon,—I can still even smell the dusty odor of our North College radiator supporting my feet and see the bright spring day outside from whose freedom and tennis attractions I had voluntarily immured myself,—and yet,

along with a heart overflowing with the best emotions from that wonderful story, I had a guilty conscience at reading so weak and suspicious a thing as a novel at all, and at the risk I was running of having to get my Monday morning's Tacitus and trigonometry on Sunday night.

With such a deadening and morbid environment in our required literary courses it was most natural that the few electives in the last two years were chosen by the great mass of us because of their being the easiest things to get through. The resultant stage of our literary culture can be seen in our class statistics at graduation, where, amid the scattering returns, the favorites were most all authors whom we had not even made a pretence of studying in college.¹

As for any knowledge of French or German literature, that was almost impossible under the system. For we could only begin a modern language in junior year, and thus there was not time to get beyond the grammar and reader. And it was a fact, too, that most of our instructors had not gotten much beyond this reader stage. That we followed here too the line of least resistance is shown in the fact that three times as many of us chose French with a weakling nondescript of an instructor than with the head professor who had some individuality and culture, but who made us work harder. Of course, here in college as elsewhere, an occasional fellow dug away by himself until he could read Buchheim's *Deutsche Lyrik* or Wilhelm Meister with some ease and pleasure, but the college did not introduce him to such delightful companionship.

When one now turns in his library or study to his beloved copy of Jowett's Plato and the poetical translation of Æschylus, Sophocles, and Euripides his heart swells in special indig-

¹In the '85 Class Book, Yale College, 122 graduating members, "David Copperfield is the book best liked. Next to that, and in order of popularity are: Last Days of Pompeii, Shakespeare, Ivanhoe, *Reveries of a Bachelor*, *Bride of Lammermoor*, Irving's *Sketch Book*, Westward Ho, *Pickwick Papers*, Henry Esmond, *Mill on the Floss*, Lucile, *Bread Winners*, Kenelm Chillingly, *Yale Record*, Ben Hur, *Monte Cristo*, Schwegler's *History of Philosophy*, Lorna Doone, John Todd's *Young Man*, *Les Misérables*, and 'my bank book.' The favorite author is Thackeray, who claims 15; Dickens, 14; Scott, 13; Irving, 6; Macaulay, 4; Bulwer, Howells, and Kingsley, 2 each; Wilkie Collins, Freshman editor of the *Record*, Emerson, W. G. Sumner, Virgil, Hawthorne, Mark Twain, Verne, Ebers, Reade, 'Prex.', Aldrich, Smiles, and Parton, 1 each. Of authoresses George Eliot has 30; 'Ouida,' 3; Mrs. Burnett, Mrs. Stowe, Mrs. Alexander, and Miss Mulock, 2 each; with a scattering vote for Katherine Green, 'Pansy,' Mother Goose, Miss Bird, Charlotte Bronte, Mrs. Woolson, and the 'Duchess.'

"We like Longfellow best of the poets. Then Shakespeare, Tennyson, Byron, Whittier, Burns, Scott, 'fighting editor of the *Record*,' *alias* Cushing, Harte, Shelly, Case, Thos. Moore, Goldsmith, Joy, and Dante."

nation at our college study of the classics, which was the foundation of the whole curriculum. For, after being drilled for two to four years in a puerile grind of preparatory school Latin and Greek, we often came to even more mechanical instructors and emotionless discipline in the first two years in college. Very few of us ever acquired enough ease in the use of these languages to get at the thought and beauty in the comparatively few literary things like the *Alcestis*, Xenophon's *Memorabilia*, the *Odes* and *Satires* of Horace, which we did translate at, while much of the material on which we practiced grammatical dissection and pigeon-hole classification had only an historical, biographical or anthropological value, like Livy, Sallust, Cicero's Letters, Herodotus and Homer. This latter group it was perfect folly for us to labor through in the original languages, which not merely added no appreciable value to the historical and anthropological worth, but even sadly prevented our getting at this real worth and preserving it beyond our crammed examination memory. And in the former group of the world's permanent literary classics the added æsthetic value which is really given by the original languages is not worth, to the overwhelming mass of cultivated readers, the years of labor which are necessary to add this increment of value, undoubted though it is, to the fundamental and main worth.

Where the study of Latin and Greek was thus concentrated on the words and their grammatical relations, we were quite unprepared to profit by the experiment of one professor of Greek as he tried to rapidly translate some Plato to us that we might really know something of Socrates. Thus, too, we were fostered into a false and morbid attitude in regard to the use of translations. About five-sixths of our class confessed to having "used a horse in translating Latin and Greek, including all but four of the philosophical and high oration men."¹ We were in the pernicious inner conflict of feeling more or less qualms of conscience, mingled with exultation, at thus secretly counteracting some of the disciplinary intent of our instructors, who, on their side, were perfectly aware of this almost universal practice and lengthened out the lessons proportionately. The ethical conflict into which one was occasionally brought is illustrated in my still vivid memory of trying to revolt morally against this practice. While we were reading Xenophon's *Memorabilia* perhaps some glimpse of the real Socrates nerved me to stop using a translation. But even with all the vigor

¹ Some of the reasons given were: because hard pressed for time, save grind, got tired of dead languages, was born tired, hygienic reasons, by advice of parents, dislike of subject, lessons too long, as a necessity, to make up back work, any one not using one is at a disadvantage with those who do. See *ibid.*, p. 65.

added by a moral struggle I could not possibly get through all the lessons; so that, having been called up several times unluckily on the end of the lesson to which I had been unable to get, I was warned for low stand. Though the professor was kindly disposed on learning of the virtuous effort I was making, he could give me so little encouragement that I bolted from his presence to the second-hand book store across the street, bought a Bohn steed that had done generations of furtive trotting, and renounced classic virtue forever. How much this parody on classical culture could have been avoided by encouraging the use of literary instead of cheap literal translations, by the instructor's translating the lesson ahead so that we would get the main ideas and emotions first of all, and then by our individual work fill in the details and nuances added by the original language! Thus we would have been stimulated to know Jowett, of whom we actually never heard, would have gotten over many more of the dramas while yet in college, and after the original languages had quickly faded from memory, would have been likely to extend our acquaintance and continue the friendship for these beautiful Greeks and an occasional noble Roman through the language of their English disciples.

When the sturdy little fighter for sound thinking, Kant, and his patron "Saint David" Hume, together with their more persuasive forerunner Locke and hard-hitter Hobbes, look down in high companionship from their pictures as well as from their immortal works, when the inspired grumbler and expositor of shams, Schopenhauer, makes us after all his charmed debtors in meliorism, when the patriot Fichte rings through his wordy idealism, and even Hegel is delightfully suggestive in his imaginative distortions of the human mind and history, when the lovableness and modern intellectual breadth of the saintly Spinoza grow more precious with years, when the old Pre-Socratic Greeks are a fascinating study in the crude undifferentiation of poetry and science, when the last and noblest Roman of them all, John Stuart Mill, is perhaps our ideal of a philosopher's head and a woman's heart—when one looks back from some decades of such gratitude to these great men and asks how much of this noble companionship we owe to our college courses in philosophy, what is the result? Why, the result is nil! The whole college point of view was wrong, for we were put through these philosophers impersonally, or classified into "schools," as the discoverers of patent systems of knowledge or solutions of the universe in general, instead of treating them as men living through their literary works. For, since child study and psychology have confirmed more scientifically some of the older prophetic philosophers in the humble

dependence of our knowledge on our senses and its patient building-up through accumulated memories and the sifted-out associations of inductive reasoning, so the old pretensions of a copyrighted metaphysical system of the universe have been humorously dissipated. And thus, beyond the value of philosophy courses as chapters in the history of psychology, the main permanent worth of the great philosophers is in their literary mixture of *Wahrheit und Dichtung*, in the scattered observations and truths of the human mind and heart as they are seen in unusual poetical analogies and felt with the intellectual enthusiasm of strong men. But in our boiled-down textbooks of the philosophers at second hand, supplemented by the suppressions and distortions due to the petty caliber of our instructors, this literary and living humanity had effervesced, and we were stuffed with the dry bones of dates, attenuated verbal abstractions, and dictated distinctions which were as indigestible for us as an ostrich diet. As we never saw our instructors getting the lives, letters, and writings of the philosophers at first hand so of course we got no encouragement to really live with them.

Likewise with the more specially moral philosophers. When a college graduate of a couple of years standing found his heart overflowing with enthusiasm for the exalted and strengthening thoughts of Marcus Aurelius and the discourses of the slave, Epictetus, and then searched his college memory and notebooks in vain for any knowledge that these men ever existed, is it any wonder that he feels a righteous indignation at such an imposition on culture? Even in the form of Farrar's *Seekers after God* these stoic saints were evidently not considered safe. As for such modern inspiration still as is stored in Bishop Butler's lovable sermons, and in Shaftesbury's clarifying *Inquiry concerning Virtue*, of these we also knew nothing. Our required course in ethics, with its childish truisms, its endless charging, countercharging and recountercharging of mere verbal abstractions, with the occasional and ridiculous suppositious case which was constructed to illustrate some of these verbal casuistical combats, and with the careful avoidance of the manifold ethical problems of the real human heart,—through such characteristics our "Moral Science" was no more scientific than "Christian Science," and nothing at all so practically helpful. Yet, it should be added, the lovable old president, who had not allowed his real ego to get into his book, somewhat atoned for the sins of his philosophical ego by his personal example and intercourse with us. It is interesting to note in connection with the language studies that, although we were supposed to make special efforts to get at the literal meaning of the philosophers studied, we were never

taken back to their original classic or modern languages, but our instructors were quite content with English translations, or even more often with mere parched paraphrases.

Looking back from an intelligent interest in the wide range of mental phenomena within and all about us, what did our college education do? The required course in "Intellectual Science" was based on a book similar to the "Moral Science." In the algebraical jugglery of compounding the trinitarian ego out of the personified sensibility, intellect, and will, and in learning by heart a series of definitions and verbal distinctions, it never occurred to us that we were supposed to be studying our very own selves. In a then newly introduced elective course in physiological psychology, which made some scientific pretense by requiring us to learn the Latin geography of the brain surface, the only visible aim and interest of the teacher was his repeated assurance that there was no danger after all of this new fashioned brain-psychology's changing the good old metaphysical intuition of the independence and supremacy of the soul in its temporary use of the grovelling body. We never saw a real piece of brain, much less a nerve cell, nor any apparatus for measuring or testing the senses, memories, or associations. The individual growth of mental life in the child and its race growth from the savage to civilization, the comparison of our own intelligence with that of the whole animal series below us, the wonderful complexity of our mental life, its manifold individual varieties in personality with the imperceptible transitions over to genius, eccentricity, and insanity; the psychology of social life, crowds, crazes, fashions, etc.; the fascinating mixture of superstitious reasoning, subconscious mental processes, and important truths in the popular psychical research phenomena of hypnotism, telepathy, hallucinations, and many forms of suggestion cure; the complete dependence of our mental life on our marvellous bodily life as they develop together, as the mental vitality varies synchronously with bodily disease, fatigue, poison, health, senile decay and death:—no knowledge of or interest in these constituents of culture were given us in college.

But now, after this pitiable list of culture credits from our college instruction there is happily some relief from these depressing memories. Our abiding and growing interest in economic, political, and sociological subjects is due—Gott sei Dank—to the political economy courses which were chosen in senior year by five-sixths of our class, and was voted the most popular study. The permanent result of this study was due to the strong personality of the instructor, his deep earnestness and continued study in his subject, to his lecture method of stimulating us to want to read and observe instead of forcing

us through a single text-book, and his distributing to each couple of us an armful of the best economic works from his loan library. Though but few of us really read these reference books, yet the mere sight of them on our otherwise scanty book shelves in our own rooms was a daily reminder of the indefatigable work in which our rugged teacher actually lived and delighted. Thus his inspiring power, even more than his marshalling of evidence and caustic satire, made this the first actually living subject in our college course, as was seen, *e. g.*, in his reversing nearly all of us into free-traders.

Another course, whose popularity depended even more on the man alone, was elementary law. Our permanently resulting interest in this subject itself was much less than from political economy; but the broadening influence we got from it was again from the vigorous, sympathetic, and just character of the teacher, as also from his method and spirit of trying to help us. When this really great teacher was called to be ambassador to England our celebration in his honor and the keen sense of our loss are among the most genuine events and memories of our college life.

One other course there was, which produced permanent, grateful results, and this was an elective study of Mill's logic. The interest aroused on getting to a great man himself after we had gone through the required and wretched little Jevons logic, the leadership of a teacher seriously eager for new light himself, and our consequent informal discussion of the most important chapters,—all this was the opening of a new world to several of us. The natural attraction of such a subject, man, and method was so irresistible that we petitioned the instructor to continue the course as mere voluntary hours without credit; whereupon the utterly unheard-of scene was enacted on many a spring afternoon of men voluntarily coming from tennis courts and filling a room to standing for the sake of discussing Mill's famous chapter on Liberty and Necessity. A gauge of the college culture at that time and a lasting shame and disgrace to its memory is the fact that this teacher, who could so attract us to sound reasoning and intellectual freedom, was decreed to be dangerous to youth and was dismissed from the college. Likewise it was an open secret that the authorities would have been only too glad and did try to dismiss that strongest character connected with the college, the professor of political economy, because of his teaching of evolution as it came in his field.

There are some of the deepest and most precious recesses of a cultured heart which find no paths of connection with our Yale education. One of these depths is music. Not the sentimental or hilarious rhythms and tunes of quavering mandolins,

negro minstrel banjos, Spanish guitars, and the lusty American college glee club; but the real knowledge from repeated hearing, and so a living daily companionship with the Schoene Muellerin and Winterreise song-cycles of Mueller-Schubert, the Heine-Schumann "Dichterliebe," the Tieck-Brahms "Magelone," with both piano trios of the lovely Mendelssohn and the heavenly Schubert, with the Mozart and Brahms clarinet quintets, with the 83 string quartets of dear Papa Haydn, with the Shicksallied and Deutsche Requiem of Brahms, with the art revolution in all the music-dramas of Richard Wagner from the Fliegender Holländer through the white heat intensity of Tristan and Isolde, the idealized satire of the Meister-singer, and the enormous world tragedy in the trilogy of the Niebelungenring to the greatest ethical Paradise Regained in Parsifal, and above all with the king of kings, Beethoven. To put another seriously tested comparison in evidence let me record my deliberate judgment that all Yale College could give me in four undergraduate years and two graduate years up to a Ph. D. does not begin to have the living culture-worth which I got during my first year only in Germany from Beethoven alone. To have heard the Ninth Symphony five times, the Missa Solomnis twice, to have heard all the other eight symphonies, Fidelio, a half dozen of the immortal string quartets and piano sonatas, and even seldom heard works like the Triple Concerto and the Trio for two Oboes and English Horn, to have played in all the piano trios and violoncello sonatas, to have come to know all these also through the scores as a part of my library and with some of the scores always lying open at hand as a change-off study,—such a companionship satisfies the heart, wears longer, and grows more precious with years than a Yale education.

Likewise if one loves to drop into the Metropolitan Museum, the National Galleries in London or Berlin, or has gathered photographs of his chosen masterpieces of painting to keep him company in his home library, if one has found the grand old English cathedrals drawing his footsteps thitherward with his growing knowledge of their noble architecture as well as history, if one has come to have an interest and sympathy for the struggling artist-architects in our own land as they try to temper our mere investment or display buildings with some permanent culture,—any such interest in art cannot be credited to our Yale studies. For, in spite of the art school on the corner of the campus and its worthy special students, we academics were no more influenced by it than by the Peabody Museum. None of our professors told us by precept or example that we would find art a beautiful, comforting, and stimulating friend to cultivate; so we left college with the popular barbarian con-

tempt for art as being a harmless occupation for girls and weak-minded men.

Another of the most serious heart depths for which we unfortunately can feel no gratitude to our Alma Mater is for some religious freedom or emancipation. Not that the college was bigoted or even sectarian, but the compulsory daily prayers with its parody on all spirituality and the Sunday morning service with its desiccated sermon were a farce even to the best of us Christians. In the small voluntary groups at the preparatory lectures and communion services we got some peace for helpful meditation. But we should have sooner gone to the good old mulatto soul of the college carpenter for any spiritual consolation than to the college pastor, whose regular Sunday announcement of his being "always accessible at 118 North College for pastoral council and advice" was one of our greatest college jokes. In our own student religious life, however, as in our democratic social life, our voluntary activity in the college Y. M. C. A. and its inter-collegiate conventions, in our class prayer meetings, and in the several mission schools of the city, was in many ways of much ethical value. The very few of the faculty who really helped in these student meetings thus came in to some grateful tangibility to us. But most of them showed no more opinion or feeling one way or the other in religion than they did in the subjects they taught. Thus the college gave us no help in seeing that conduct was the only essential and permanent part of all sects and religions, that our anthropomorphic theology would fade from a threatening literalness to a persuasive figurative and consoling poetical function. No intentional influence of our courses in science, Plato, literature, German, philosophy, or ethics pointed us ahead to some such theological emancipation and the consequent ethical strength which is found in various degrees and forms in the Histology and Physiology of the Nervous System, in "Man's Place in Nature," Emerson's Divinity School Address, Clark's Ten Great Religions, Plato's *Phaedo*, Kant's Critique of Pure Reason, the Thoughts of Marcus Aurelius, George Eliot's "Oh, may I join the choir invisible," Tennyson's *In Memoriam*, Matthew Arnold's *Thyrsis*, Fiske's Idea of God and Destiny of Man, Tylor's *Primitive Culture*, Goethe's *Faust*, Browning's *Ring and the Book*, Huxley's *Science and Christian Tradition and his Life*, the Correspondence of Liszt and Wagner, John Stuart Mill's *Autobiography*, the *Cathedrals of Lincoln and Durham*, Wagner's *Tannhäuser*, Brahms's *Deutsche Requiem*, and in the last sonata, quartet and Ninth Symphony of Beethoven.

Having thus reviewed all the appreciable influences in the Yale curriculum and instruction in their relation to a gradu-

ate's later culture, were there any other influences in the college which contributed to future culture? Yes, and important ones, too. First of all a healthy modesty and self reliance was cultivated by the democratic spirit which was particularly characteristic of Yale student life. The cosmopolitan life of daily contact in the class-room, in the dormitory, at the eating club, and on the athletic fields with missionary sons from India and Hawaii, with wealthy New Yorkers, with proud and narrow-blooded Puritanism, with southern fire and chivalry, with close pecuniary Vermont thrift, with the loudness of Chicago, with the generous and kindly swagger of California, and with the hayseediness of Iowa and provincial Connecticut,—such friction tended to develop a democratic self reliance. How much of this should be credited to the college faculty is hard to determine. They at least ground us impartially, irrespective of wealth, station or family, and an occasional professor mingled with us in a character metamorphosed from the class-room as a living and sturdy young man. But by far the greater part of this wholesome democracy was from the students themselves. Besides the dormitory life in common the three main influences were open competition for editorships on the student papers, and specially the "Lit.," the selection by the great senior secret society of fifteen men of proved and highest ability, and the healthy activity and competition in athletics, in some form of which every one regularly exercised. In spite of some mistakes and an occasional outcry of favoritism, on the whole each student had to make his own place in the student world of ability and honor. Thus the characteristic Yale spirit of democracy and perseverance, which is probably more prominent there than at other colleges, is chiefly due to the cosmopolitan character and traditions of the students themselves. For the grind of goading discipline in the curriculum does not compare in the training of perseverance with the voluntary labor and hardships which a student will gladly undergo in some pleasurable activity or in a study yielding some scientific knowledge or culture.

When now a Yale graduate looks back from his fifteen years of subsequent education upon his undergraduate academic life and tries to fairly summarize its contributions to his culture, the result is that a great deal can be credited to political economy and to the instructors in law and in reasoning; almost nothing to the sciences, the classics, English or modern language literature, and philosophy; absolutely nothing to music, art, and religious emancipation; while the debt to Yale democracy and perseverance is due but slightly to the faculty themselves. One of the fundamental means by which this antiquated plan of education was fostered at Yale was by

the inbreeding of its teachers. For there continued pre-eminently the old practice of selecting the new tutors from the valedictorians and high-stand graduates of each class, before they had time or stimulus to study elsewhere at home or abroad, and training them for professorships while in the continued treadmill grind of pure discipline. Thus, with the narrow barbarian stage of the faculty on the whole, how was it possible for us students to gain a larger horizon of life? The typical result of such an education is a hail-and-well-met man of vigor in action and business, of a wholesome democratic modesty, with an unusual enthusiasm for his college, but with a genuine Philistine indifference or even contempt for the culture of science, intellectual freedom, good books, and art. The overwhelming mass of Yale graduates thus remain, more than other college men, on their graduation barbarian plane and continue their loyalty to Yale through the illusion of ignorance. The few who chance to study non-professionally further at other American, English, or German Universities discover more or less of this Yale travesty on all that is most beautiful and noble, comforting and stimulating, satisfying and inspiring for all the depths and heights of our actual everyday life. Because most of her sons never experienced the loving helpfulness and wise culture of a great-hearted mother, Yale is honored as an Alma Mater instead of reproached as really a castigating step-mother. It would be altogether unreasonable to expect that all these maturer best things of a culture-companionship should have been given us in our undergraduate maternal dependence; but that we should have been so almost purely disciplined as not to have been given a start and an impetus toward these highest things of life,—that is the dreadful pity and shame.

Yale has progressed greatly during the fifteen years since the foregoing picture of its education, notably in the introduction of laboratory methods of teaching the sciences, in the range of the sciences offered, in the less exclusive education of its teachers, in the pursuit of original work by instructors and students, in the provision of noble music, and in the secularization of the presidency. But in a college where progress has chiefly been made by yielding reluctantly to outside pressure through imitation of, and competition with, other more advanced universities, instead of striving from within to realize the high ideals of culture as they are refined from the wide life-experience of the teachers themselves, and has gloried in this conservatism, there is little hope that it will ever become the equal or even the worthy compeer in culture of many of our larger and smaller American colleges. It was decidedly inferior to many at the time of this picture, its assumption of the name

of university was only justified by its heterogeneous conglomerate of professional schools; while the present academic college, as the core of the bi-centennial university, is still grotesquely far behind the spirit, freedom, and methods of original work and the grade of genuine culture which not only make Cambridge and Berlin, but which are happily engrafted on to our American life in such universities as Clark, Harvard, Columbia, Cornell, Chicago, Stanford, and several smaller ones. Most of the other older colleges and universities would be found upon analysis to be quite as far behind genuine culture in many of these components; and Yale is here taken as probably the most conspicuous example of this conservative type of supposed education.

There are undoubtedly some fathers who would deliberately choose to send their sons to Yale because they believe that the wholesome democracy there more than atones for the lack of culture. But to those many fathers who have not deliberately made this comparison, and to those idealists in education who test a university by its approach to the individual standard of a widely gathered and deeply-felt culture, this historic and detailed comparison is offered as a postscript to the vague and indiscriminate jubilation of the Bi-Centennial Anniversary of Yale.

ILLUSTRATIONS OF THE APPLICATION OF PSYCHOLOGICAL PRINCIPLES TO ETHICAL PROBLEMS.

A LAY SERMON CHIEFLY UPON THE PSYCHOLOGY OF
RENUNCIATION.¹

By EDMUND C. SANFORD.

That psychological principles have useful applications in the arts of medicine and pedagogy will hardly be questioned under any but a cramped definition of the science. It is not of these, however, that I desire to speak, but rather of their application in a less tangible field that, namely, of the conduct of life. I wish, in a word, to consider whether or not psychological theory can furnish a basis for anything like a rational hygiene of the spirit—what it can do now toward that end and what it may be expected to do as the science is cultivated with that end in view.

The business of a science in general is to bring order and system into the experiences of mankind; to note, arrange and classify; to trace antecedents, consequents, and mutual relations, and to formulate the uniformities observable among them. The business of psychology in particular is to bring order out of the chaos of those experiences that we call mental—thoughts, emotions, volitions.

The question then is this: Has the science of thoughts, emotions and volitions any generalizations that throw light upon the experiences that we commonly call spiritual, or are these something of a nature apart, to which the laws of mind do not apply? I have no hesitation in saying that the science of psychology has such generalizations, and the chief purpose of this paper is to show that it has, first by several simple instances and then by a fuller examination of a spiritual experience of a more complex character—that, namely, of renunciation.

Let me begin with a very simple case. The Scripture says, "He that hath, to him shall be given, and he that hath not,

¹ The substance of this paper was originally presented before the Philosophy Club of Wellesley College, and has been used since on several occasions.

from him shall be taken even that which he hath." Taken as it stands this is a paradox, but it doubtless sums up the results of repeated observation, and experience justifies it. Examined in the light of psychology it proves to be nothing more nor less than an epigrammatic statement of the principle of apperception. We progress in knowledge of any sort because the new items are joined on to those we already possess. We comprehend a new experience by means of similar experiences in the past. What cannot thus be joined on and understood means little to us and is soon forgotten. Connected experiences form lasting association groups which influence the course of future associations, and thus strengthening themselves, come to control the whole course of thought. The student who selects the medical profession is at first open-minded upon many questions in and out of medical practice, but having gained a little medical knowledge he gets an apperceptive group of medical ideas that influence him not only in his medical thinking but in all his thinking, and may even in the end make him oblivious to all other points of view. It is like the stick of driftwood in a river, which first runs aground itself, and then catches other drift and weeds and sand till it becomes an island and turns the course of the stream. The converse is also true; the log that does not ground gathers no debris and makes no island; the thought that flits through the mind and forms no associates does not return and is forgotten; from him that hath not shall be taken away even that which he hath. Habit may make it natural to think of the Scripture phrase as limited to the religious life, but in the light of psychology it has a much wider scope. It is true of all mental experiences, evil as well as good, trivial as well as weighty.

Let me take another simple example. The wise have said, and experience approves, that "out of the heart are the issues of life." In psychological terms this is simply that the basis of character is emotional; that what a man really cares for, that will control both his action and his thought. Emotion is the genuinely fundamental thing in our psycho-physic make up; not emotion in the superficial form of conscious emotionality, but the really deep feelings that we are more or less unconscious of because we do not know what it is like to be without them. How does it come about that these deepest emotions hold the fundamental place that they do? It is because they are the survivals of important racial or individual experiences—experiences so often repeated or so vivid at their infrequent repetitions that to neglect them has meant serious consequences.

The experience of conversion is certainly a genuine spiritual experience, not one that falls to all, but in the minds of many

the spiritual experience par excellence. One comes, like Christian in "Pilgrim's Progress," to feel the burden of his sins; passes through a time of wretchedness and fear on account of them; finally sets out on the road that conscience indicates; and finds in it an exaltation of happiness as great as his misery has been deep. Such an experience, when genuine, is no mere superficial play of emotion, but leaves the man changed in aim and conduct. Something like this is the case of a typical sudden conversion, and some perhaps would be ready to remove it entirely from the category of natural experiences and give to it a wholly supernatural origin. A little study of it by objective methods (*vide* the work of Daniels, Leuba, Starbuck and others) reveals, however, that it is a very complicated matter; one into which many streams of influence enter—some even physical—and, above all, that it is not a unique experience, but one found in all degrees of intensity from volcanic explosiveness to imperceptibly slow evolution, and found also in many secular relations of life. It is unique in the sense that passionate religious emotion is unique and in no other; it is the last term of a series of which the lower terms are common and easily understood. It is found, for example, both in the statistical studies and in the experience of revivalists that the harvest time of conversions is in the adolescent years when everything—physical, intellectual and social—conspires to give the growing boy or girl a newer and fuller and less selfish vision of life, to assist him in turning away from the old and putting on the new, not only in things moral and religious but in all things. To be dissatisfied with one's course or condition and to enter with lightened spirits upon a new one, is something peculiarly easy in a time of transition like adolescence, but is not uncommon at any time. Such a new start is conversion, rendered important by the importance of the questions involved, and rendered violent at times by all that can play upon human emotion. A work of God it may be, but a work executed through changes in body and in mind that follow laws as rigid, though obscure and complicated, as those that govern the growth of a seed or the disintegration of a rock.

But let us turn to the matter of renunciation. If there is one thing more than another that the great teachers of the spiritual life have urged, it is renunciation, self surrender. Reluctant as he may be the would-be disciple gets no answer but "go thy way, sell whatsoever thou hast . . . and come, take up the cross, and follow me." The Scripture says: "Whosoever will save his life, shall lose it; but whosoever will lose his life for my sake, the same shall save it." Thomas à Kempis has these four rules for inward peace—"Be desirous, my son, to do the will of another than thine own." "Choose always to have

less rather than more." "Seek always the lower place and to be inferior to every one." "Wish always and pray that the will of God may be fully fulfilled in thee." Two of these rules, the first and last, clearly enjoin self-surrender. The "*Theologia Germanica*," of which Luther said: "next to the Bible and St. Augustine no book hath ever come into my hands, whence I have learnt or would learn more of what God and Christ and man and all things are," is earnest in its denunciations of the "Me" and "Mine," and has chapters headed like these:—"How the perfect men have no other desire than that they may be to the Eternal Goodness what his hand is to a man; and how they have lost the fear of hell and hope of heaven;"—"How that if a man will attain unto what is best, he must forswear his own will; and how he who helpeth a man to his own will helpeth him to the worst thing he can;"—and again:—"How nothing is contrary to God but self-will, and how he who seeketh his own good for his own sake findeth it not; and how a man of himself neither knoweth nor can do any good thing." Tennyson says:

"Our wills are ours, we know not how,
Our wills are ours to make them Thine."

And Chaucer:

"Waivè thy lust and let thy ghost thee lead,
And truth shall thee deliver, it is no drede."

The attitude of self-surrender occurs again and again in varying phrase in the church hymnals. Self-surrender is the very crisis of the experience of conversion, and the appeal for self-surrender is the key note of the preacher and revivalist. Nor is the exhortation to renounce confined to Christianity. The Nirvana of the Buddhist is a state in which everything has been renounced, even separate and individual existence. One might almost say that religions are popularly regarded as spiritual just about in proportion as they enjoin renunciation.

Such has been the voice of the saints and mystics, though it must in fairness be admitted that it has not passed wholly without challenge. Against the more serious forms of renunciation human nature has rebelled, and not a few proverbs have been coined to commend the self-assertive. "Heaven helps the man who helps himself." "Look out for number one." "To thine own self be true." The same thing gets a more drastic expression in the *Herrenmoral* of Nietzsche and in the ethics of the survival of the fittest. But by far the preponderant exhortation of those who have taken life seriously has been: Renounce.

What shall psychology say to all this? Let us examine a little what we mean by renunciation. We find it to be a giving

up of one's will or desires—a giving up, generally, which costs a struggle; or, to express it a little more exactly, a struggle between two opposing wills or two opposing desires, one of which finally takes precedence of the other and is acted upon; and we find the giving up or the suppression of one contestant recommended as the road to peace.

In an insignificant way, this is a daily experience. Our minds are continual fields of conflict. Herbart is right in making the struggle of ideas the most important thing in the mental world, and we have in the quiet thought which succeeds the suppression of one idea by another, the parallel in miniature of the result of the more tragical cases to which the word renunciation is usually applied. One is listening at the telephone while conversation is going on in the room. He is bothered and in discomfort until either the telephone conversation or the other is at an end. Then he listens in quietness and at ease. Every one remembers the predicament of the poet in the presence of his two sweethearts, "how happy could I be with either, were t'other dear charmer away." The cessation of conflict has peace as its inevitable result, no matter on what plane the conflict may be; so that the "peace which passeth understanding," of which the mystics have so often talked, is not something unknowable or known only to the elect, not something mystical, but a sober fact; one of a most common class of experiences, unique in the nature of the struggle that it terminates not in its nature as a psychical experience.

In ordinary matters, the coming of peace is little or not at all affected by the question of which contestant is suppressed. In the telephone conversation, one listens at ease whichever of the rivals ceases; the poet was happy with either dear charmer by herself. The same is true also in the higher and more complicated cases in which we are now interested. If a man will resolutely renounce the Lord and all his works, the humiliations and sincerities of religion and the spiritual life generally, he will as surely find a peace that shall perfectly possess him, with reference to such matters, as he will if he renounce with equal fervor, "the devil and all his works, the vain pomp and glory of the world," and the pleasures and pride of life. If in either case he renounces absolutely and forever, his peace as regards that source of trouble will be perfect and unbroken; if he renounces in part, his peace will be in part. It is as true of one sort of surrender as of the other. At the climax of his long and fantastically morbid struggles with a supposed temptation to "sell Christ" Bunyan did give up, accepted his eternal condemnation and therein found, though deeply melancholy,

a relative peace which proved the first stage of his return to better and saner thinking.

If this is so, why should we not as well seek peace in one way as in the other? Why should we not get rid of all scruples at once and forever? Why should we not eat, drink and be merry? Well, it seems to me that, from the psychological standpoint, it is simply and solely because it is less easy to renounce the Lord and His works than it is to renounce the devil and his. In other words, that there is that in ourselves and in society and in our environment which returns upon us again and again if we renounce that which we think of as good and right, and by its importunity breaks our peace and prevents our rejection of good from being final. Most of us know well enough by lamentable experience that such returns are characteristic also of our renunciations of that which we believe to be evil. That also returns, renews the conflict and destroys our peace. But the universal exhortation to renounce the evil can only mean, as I have said, that the evil is easier to renounce, is weaker than the good; that if there is over the souls of men a Huns' battle of angels and devils, the party of the angels is a little the stronger. This is optimistic, but it is what a psychological examination seems to justify.

Such a passive aspect of renunciation is perhaps what is most commonly noticed, but it is not the most important aspect nor the aspect which is embodied in the Scripture phrase that I mentioned first. It is not said that whosoever will lose his life for my sake shall possess his soul in quietness, "but whosoever will lose his life for my sake, the same shall save it"—keep alive. There is an active side to renunciation. It is a fact well-known to those who interest themselves in psychological matters, that the struggle of ideas in the mind is no more a struggle for the possession of consciousness than it is a struggle for the possession of the muscles. Every mental state tends, at least, to express itself in action or in influencing action; and every state in so far as it is unopposed tends *ipso facto* to seize upon the motor system and put itself into execution. At lower levels one has an illustration of this in the tendency to execute a movement which one may happen to have in mind when drowsiness removes the restraints. It may be that he is dropping asleep with the thought of a new tennis stroke in his mind. Just as he is fairly gone, his arm executes the stroke and wakes him up again.

One has painful knowledge of his inability to act promptly and certainly when two courses are equally open to him. For example, when in a hand at whist, he has two equally good leads, or when in an awkward social position he has two impulses at once. In higher matters this conflict gives us

shilly-shallying, and the accompanying feeling of impotence when the state is in ourselves and of impatience when it is in others. At the highest levels it gives us characters in some points like that of Hamlet, in whom opposing thoughts of action are again and again at a balance and all action is weakened or prevented. It is, therefore, as the secret of effective action that psychology would recommend renunciation. Renounce, not so much that you may have peace; renounce in order that your hands may be free to do something. "My strength is as the strength of ten, because my heart is pure," says Galahad—pure not only of lust and worldly ambition, but pure of conflict. All the forces of the man are available for the expression of the purpose that is within him.

We are accustomed to look for examples of those who renounce completely, in the contemplative careers of monks and on distant mission fields, but this is not by any means necessary, as has been abundantly shown by the life of Gordon. Those who know his story at all know that he renounced his own will in a most uncommon degree. He took the religious phrases literally; he regarded himself as the bond-servant of the Almighty, with no other business than to do His will here upon earth till He should take him hence. The result was an unconcern in danger and a contempt for worldly honors and rewards that has rarely been equalled. When leader of the "Ever Victorious Army" in the Taiping Rebellion, he placed himself again and again in the forefront of danger. In the Soudan, to take a single instance from his life there, he rode with only a handful of men into the camp of a band of slave-traders and robbers on the point of open hostility, and even went with them to their stronghold. In freeing himself from himself, he had freed himself also from fear, and the entanglements of ambition, and every weight that might impede him in action.

Mere renunciation, of course, does not mean a brilliant career. One cannot improve the speech of the proverbial school trustee by saying, you may one day be President, provided that you renounce. The rewards of high position and great success in life are in the long run for those whose endowment fits them for such things. Cause and effect hold here as elsewhere, and renunciation is not a sufficient cause of this kind of success. The reward of renunciation is that a man shall act freely; that he shall use such capacity as he has without loss, that he shall not trip himself up nor waste his ammunition upon himself. Renounce, says psychology, that you may have the strength and freedom and grace which attend unimpeded action.

So much for renunciation in the ordinary sense of the word,

the effortful giving up, the suppression, which is made with difficulty. But as there are all grades of the conversion experience from the extreme of violence to the extreme of gentleness, so there are all grades of the renunciation experience (that is of the suppression of one desire by another) from that which is only made with strong crying and tears, to that which takes place instinctively and because it cannot be helped. Renunciation in the ordinary sense is but a species of a larger genus.

There are many givings-up which bring peace or rather insure it, and free the soul for action, which cost no struggle. These are the renunciations which one makes because he would rather than not. The renunciations that are made in the ordinary course of growth—"When I became a man I put away childish things"—the renunciations which the mother makes for the sake of her child; the renunciations which a lover makes for his beloved; the things which the saint counts as dross that he may obtain Christ. Peace and the power of free activity follow these as well as the others, or perhaps I should rather say that, were the renunciations not made and free action allowed, the most direful conflict would result.

Is renunciation a good thing in itself? it may be asked. By no means. Every renunciation is not to be recommended, even though it should promise peace and freedom for action. Even for these ends it may be a mistaken renunciation. The wrong party in the conflict may be renounced, and so the contest may only be postponed or prolonged. But besides this, there are penalties for all renunciations. A man cannot have the benefits both of what he renounces and what he retains; he must surrender the advantages of one or the other; he cannot keep his cake and eat it; he cannot serve God and Mammon.

The question in the long run, as Professor James remarks with reference to the forming of lasting decisions of any kind, is in discovering which party in the conflict will be most permanently in control. And the permanency of one or the other depends on many things which lie outside the narrow scope of conscious introspection, upon a thousand factors of physical condition, inheritance, early instruction, present environment and future environment. It, therefore, behooves one to be very cautious about renouncing for the sake of renouncing, or renouncing in any wise hastily, or for any but grave reasons, when a real conflict is in progress. Indeed one may almost say that it is best to remain passive on the deepest and most important questions of all, and to let the conflict settle itself; to let the really stronger and more lasting desire take possession of us. This, it seems to me, is the psychology of what really lies at the bottom of the pious phrase of waiting for an indication of Providence.

So much by way of a rude and hasty sketch of the spiritual

experience of renunciation and its psychological congeners. It has, with the other examples, made clear, I trust, the sort of thing I have in mind when I talk of an application of psychological principles to the conduct of life, and has shown at least the distant possibility of a rational hygiene of the spirit. Not much has yet been done and not much can yet be done in perfecting such a hygiene. Psychology is itself too undeveloped, and too little attention has been given to problems of this sort. A beginning has been made, however (witness the essays of Professors James and Royce and the investigations of President Hall and others), and there is an abundance of material. Since men began to look consciously at their lives there has been no lack of practical students of these questions, men who cared everything for the sort of life to be attained but nothing at all for the philosophy of the means of attaining it—just as there have been students of children since the first mother held the first baby in her arms but no overt child study till the present generation. The results of this practical study of life embodied in the lives of saints and other earnest men, in the rules of monastic orders, in books of casuistry, in bibles and manuals of devotion, in problems and maxims, in poetry and novels, and finally in life itself as one lives it—these are an exhaustless treasure house for the fully qualified psychologist. But he, alas, is not easy to find. He must have, on one side, a wide and vital spiritual experience (here it is pre-eminently true that one must know the things themselves before he can understand what others say about them, he must do the will before he can know of the doctrine), and he must have, on the other, a sufficient knowledge of psychological science and interest in it to organize in a truly scientific way the material which he finds—a combination that is rare in a high degree, possibly because the qualities are more or less antagonistic in themselves.

This ends my argument. I have tried to show that psychological principles can with advantage be applied to the deepest questions of the spiritual life and that such an application may be expected to do for spiritual health, by leading to the formulation of a spiritual hygiene, what physiology has done for bodily health, by giving ground for bodily hygiene.

It is quite probable that such knowledge ought to remain for the most part in the hands of those who deal with such questions professionally, as indeed it is likely to do, and should reach the majority of mankind in well considered maxims of conduct or in the form of expert advice in difficult cases. It is not every man who can attend with advantage to the physiology of digestion, though the hygienic rules based upon it are most important. But the knowledge should be in the hands of those who are looked to for advice in moral and religious

matters, and an increase in their ability and willingness to regard these things in the light of science can result in nothing but good.

But having finished from this standpoint let me for a moment take another and contrast this whole system of knowledge about spiritual things with the actual experiencing of them. Some of you are perhaps already saying to yourselves: This is all very well, but suppose that psychology has had its perfect work, that all the moral physicians are competent and all the rules of spiritual hygiene have been brought into order, will that make any great difference in the actual conduct of life, will it be any easier to set one's life in the right key, to attain any of the virtues? I must reply that this psychology of the spiritual life is a pure matter of intellect, of knowing and not of doing. Its perfection will not make any difference with the *fact* of the conflict; it will only make it a somewhat fairer and saner conflict, one fought out in the light instead of in the dark. This will be something, but the conflict is not of psychology's making, and will not end at its bidding. I do not see that advance in knowledge of any kind can directly do anything more than this. And this is not altogether an evil. To fight is to live, to have no conflicts is to be dead. There is good psychological reason for thinking that consciousness attends only those states in which there is conflict, and flies those in which everything is so well ordered that they are automatic. And this throws a back light upon renunciation as an escape from conflict. It has that result truly, but in a vigorous life the escape from one conflict only means the taking on of another. It is an inspiring thing to think, as we must, if we believe in the evolution of mind, that we are descended from a long line of fighting and victorious ancestors, of bloody victors in the early stages but of victors growing ever more humane and approaching more and more to those who win through self-sacrifice. When I read "Looking Backward" some years ago, I was struck with what seemed to me a wise insight of the author's. In spite of all the material and social changes of that remote future, one thing remains the same, the hero and the heroine fall in love with each other in the old way. There are some human tendencies that are not done away with by any shuffling of the material or social or intellectual counters, and one of these is doubtless falling in love, another is the spiritual conflict, with its respites of renunciation and its renewals again at other levels. There would seem to be a conservation of these and a few more fundamental human experiences, like the conservation of matter and of energy. And these it is that in our strenuous moods we should be least willing to lose from life.

EVOLUTION OF HOSPITALS AND TRAINING SCHOOLS FOR NURSES.

By CAROLINE A. OSBORNE, M. D.

In the arrangement of a modern hospital, the absence of a training school for its nurses would be regarded as an anomaly. The character of its service is such, that nurses trained especially for its execution are necessary to carry on the lines of treatment deemed essential to the well being of its patients. It is only twenty-five or thirty years, however, that the necessity for trained assistance has been appreciated and the training school evolved from the chaos which used to surround patients in hospitals. The development of a modern training school for nurses is most interesting, as its history is traced from the efforts of philanthropic workers to surround those disabled by sickness or injury from the discomforts and privations that fell even to the wealthy—while the sick poor were in such surroundings that even a description of their state is often too harrowing to read.

In tracing the history of the hospital and its training school for nursing service, one is led naturally, to the evolution, first of the physician, since to his efforts are the hospitals dependent on the success of their work.

Very early in the race history, gatherings of the sick at some central place, are spoken of. The friends of the sick as well as the sick themselves, would be interested in getting similar cases together, and notes on comparative treatment exchanged. The more observing of the people brought in contact with the sick would soon begin to notice similarity in diseases, and differences in different diseases. They also would observe that certain remedies produced certain results, and an empirical materia medica and therapeutics would come into existence. Soon, from an interest either scientific or humane, or both, a class of these observers would be formed for mutual exchange of ideas, and a system of the practice of medicine be evolved.

Early in the race history, gatherings of the sick are spoken of in connection with the temples of Hygeia and Æsculapius in Greece, and at Bethesda, at Jerusalem. In the temple of Æsculapius, Hippocrates, born 460 B. C., carried on his observations and investigations that give him pre-eminence among the physicians of his time, and honor even at this present day.

The first physicians were from the priest class, naturally adding to their religious instruction, rules of correct living that possessed more weight from such sources. In Egyptian history writings on medical subjects exist as early as the 14th century B. C. In Berlin there is a papyrus of this date treating of inflammation and kindred subjects. The Egyptians had as early as the 11th century B. C. a class of physicians of the sacerdotal order, who were paid by the State, and who, required by the State to treat the sick poor, practiced their art very carefully. It was impossible for them to always go to the patients needing treatment, and thus it came about that dispensaries were established where those needing treatment could come for relief. The dispensary may be regarded as the forerunner of the hospital and Egypt given credit for thus suggesting the solution of dealing with disease in the most effectual way, with least expenditure of energy on the part of those concerned in the relief of sickness.

Greece seems to have gone to Egypt for suggestion and method in the treatment of her sick. The priests were there also the physicians, and the religious teaching was given hand in hand with the medicinal treatment. In the fifth century, B. C., the Athenians built hospitals and dispensaries, and had well trained physicians long before this. One hospital was located at Piræus. Hippocrates did much before this, to separate the physician's calling from that of the priest.

The Romans, while behind Greece in culture, yet had their hospitals and physicians between four and five hundred B. C. They utilized private houses as hospitals in which to treat their sick and wounded soldiers. In the time of Hadrian, government institutions for these purposes are supposed to have existed.

Going back still to other races, we find India rich in its methods of care for the sick, and in institutions where proper care and appliances were ready for use.

In the third century B. C., King Asoka established hospitals along the frequented travel routes. His edict, cut into a rock at Guzerat, may still be seen. This edict required that these places "shall be provided with instruments and medicines, consisting of mineral and vegetable drugs, with roots and fruit; and that skillful physicians be appointed to administer them at the expense of the State." These hospitals lasted over 800 years, doing their good work long after the founder died. In Wise's Review of the History of Medicine, a quotation is given from Tounour's translation of the Mahawaso, to the effect that, "Budda had appointed a physician for every ten villages on the high road, and built asylums for the crippled, the deformed, and the destitute. His son, Upatiso, built hospitals

for cripples, for pregnant women, and for the blind and diseased, and Dhatusend built hospitals for the cripples and the sick." In our own country, dating back into remoteness, Prescott tells us there were hospitals in Mexico for the governmental care of the sick and the disabled soldiers. Their date is unknown.

We naturally look to the Jews for their methods of treatment of the sick, and care of contagious and infectious diseases, so common in the East. Very early in their history surgical operations are spoken of. Their minute and careful methods in dealing with infection, and methods of hygiene, both for camp and house purposes, may be studied to advantage, even at the present day. We find treatments for certain diseases given, the priest's calling early separated from the physician's, and the apothecary in existence.

Later, in the parable of the good Samaritan, the modern antiseptic care of wounds is anticipated, in the wine and oil poured into the wounds, alcohol being one of the most used modern antiseptics. We do not find any references to hospitals, or the care of the poor at the expense of the government, yet, from our knowledge of the people, it may be assumed that such places existed. Returning to the Romans, we find a hospital built by them at the Acilian Crossway (219 B. C.) for the use of a Greek physician, who came to exhibit the superiority of Grecian methods. As years passed, these hospitals multiplied. At the great eruption of Vesuvius, 79 A. D., when Pompeii was lost, a hospital was buried in the ashes. This was, after centuries of oblivion, uncovered—and found to consist of one large room,—a hallway, through the entire center, while on each side, there were openings into smaller rooms. In these rooms surgical instruments were found which are now in Naples, and may be seen there. These instruments consisted of "scalpels, scrapers, elevators, forceps, drills, and a well made vaginal speculum."

Xenophon, about 400 B. C., alludes to physicians and surgeons in connection with the Greek army.

In an Aurelian order 270 A. D. it is required that "the soldiers be cured gratuitously by the physicians, and conduct themselves quietly in the hospitia, and he who would raise strife let him be lashed."

In England and Rome, tombstones are found which were erected to the memory of the medical staff of the 2nd century.

In accordance with the teachings of Christianity, hospitals and places of refuges began early to be established by its followers.

In the 2nd century the idea of hospitals took definite shape in the Christian mind, and soon, under the care of St. Jerome,

hospitals came into existence. The first were near Bethlehem, then in other places. Some of these hospitals were for the lepers, the most needy, perhaps, of all invalids. Others were used for hospital purposes in the care of any disease, while others seem to be merely inns at which pilgrims could find suitable refreshments and rest.

Under St. Jerome's influence, we find Fabula, a Roman lady of wealth, building a hospital in Rome in 379 A. D. This is supposed to have been for the joint purposes of caring for the needy as well as the sick.

The Council of Nice, in the 4th century, set its seal of approval on hospitals, as representing a very necessary, as well as desirable part of church work.

The hospital at Cæsarea was built 370 A. D., and the Hotel Dieu, in Paris, in 600 A. D. The latter has been famous through the centuries. This hospital has a most interesting history, its years of usefulness extending into the 18th century, and its immense size adding to its renown.

Through the middle ages monasteries were established in various parts of Europe. These set apart a place for the care of the sick among them. It was but a step farther to receive the sick from outside the monastery, and then to build the place for the sick in a separate building from the other; thus our hospital is evolved. In all this history, no hint is given of systematic care of the sick by trained attendants. Very little was known of the value of cleanliness, and the necessity for abundance of fresh air, pure water and light was not even dreamed of.

Infectious diseases were crowded together, sexes cared for in the same beds, without regard to disease or condition until the death rate became so great, and the condition of the sick so desperate that the words, "who enters here leaves hope behind" might well have been inscribed over every hospital entrance and ward.

As Christianity spread in Europe, hospitals increased in number, but medical science was not keeping pace with the needs of the inmates, and terrible abuses crept into hospital management. Diseases spread more rapidly because the sick, aggregated in the hospitals, and exposed while in a condition to contract disease, succumbed to the ravages of infections until the death rate rivaled that of the plague.

The modern dread of hospitals very likely came from this state of affairs, and the history of these abuses handed down from those worse than "Dark Ages." The modern four-posted bedstead is a survival of the boxbed that was used in the Middle Ages for purposes of warmth. The bed being really a box with sides that closed at night. When we read that men and women

were crowded promiscuously, without regard to disease or sex into these beds, we only wonder that any one survived. The beds of the "Hotel Dieu," in the 16th century, were said to have from 8 to 10 patients each. In the 17th century it contained several thousand beds containing from 2 to 6 patients in each. During the prevalence of the Plague, 68,000 patients died in this hospital within one year.

The medical authorities protested against such hospital management, and the clergy became alive to the terrible conditions of affairs until, gradually, the principles of sanitation have taken their proper place, and fresh air, sunshine, pure water, and perfect cleanliness are the primary essentials demanded in any hospital.

Among the Mohammedans, hospitals are said to have been managed, and the medical science of the day better developed, than among the Christians. In this connection it is interesting to note that the Mosque of St. Sophia, in Constantinople, was originally built as a training school for nurses.

Among the first definite attempts to directly train women for nurses, was that made in Germany by a Lutheran minister, Theodore Fleidner, in 1822. Fleidner's attention was drawn to the forlorn, hopeless condition of the women prisoners of his little town, Kaiserwerth, on their discharge from prison. Casting his thoughts about for ways and means to better their condition, and that of the sick poor at the same time, he finally solved the difficulty by starting a little hospital, first in a small house near his. Then in an unused velvet factory, with these women for nurses. From this tiny beginning, the order of "Deaconesses" thus established has spread over the globe, until his homes for training nurses are found from Jerusalem to the western United States. The vows of the Deaconesses pledged them to the "care of the sick, the poor and the young;" unquestioning obedience to the superior nurse, was insisted on. These vows might be taken for a time only. Thus making the training desirable for any one who wished to follow that line of work for a time, but did not care to devote life to it. At Fleidner's death, in 1864, over 100 establishments existed, and 430 Deaconesses were carrying on their work.

Nursing in England was mainly done by the pauper or the criminal class. Hospitals as such only existed as infirmaries connected with almshouses, and the nursing was done by the inmates. No trained nurses existed, even for the wealthy class. They had to depend on some kind relative or be left to the cruel neglect of some "Sairy Gamp."

The files of the British Medical Journals of the early '60's are full of tales of neglect and mismanagement of the sick in institutions.

The vital question was that of nursing. One report from the London workhouse, in 1866, says that of thirteen nurses only one could read, and how medicines had been given was startling to think of.

Another physician said his nurses were good, but they were always drunk, and one was found to be imbecile.

Florence Nightingale is the connecting link between the old untrained nurse, and the modern well trained, intelligent graduate nurse. Born in Florence, reared in a comfortable English home, of sympathetic and unselfish disposition, her attention was early called to the condition of the sick poor around her, and then to the condition of the sick poor in the almshouses and infirmary hospitals. She visited hospitals in England first, studying their needs, then went to the continent. She entered Fleidner's school at Kaiserwerth, although discouraged by Fleidner himself, who did not understand why this slender English girl should care to study with his released prisoners. Miss Nightingale spent several months, at two different times, in Fleidner's school. The second time she carefully studied hospital management and sanitation.

The opportunity for Miss Nightingale's demonstration of the value and efficiency of trained women nurses in sickness came with the Crimean war. Before the medical authorities realized the danger threatening the soldiers, the pestilence had broken out among the wounded, and the dead and dying were without care or treatment. The newspapers appealed to the people, the people and the war office appealed to Miss Nightingale, and in six days from her call from the war office she was on her way to the seat of the war with thirty-eight partially trained nurses.

When they arrived they found 600 more freshly wounded soldiers from the battle of Inkerman waiting for treatment. So bad was the condition of things in the hospital that in the first twenty-four hours Miss Nightingale only succeeded in getting the dead removed from the hospital. She had to encounter the opposition from the medical authorities, who were jealous lest their province be trampled on. So well did she conduct her work, co-ordinating the care of the patient with the surgical and medical treatment, and so tactful was she with her management, that all opposition speedily vanished, and she was given control of the whole nursing part of the work. This gave her the opportunity to demonstrate to the world the value and absolute necessity of trained service in supplementing the physician's care of the patient and in gaining best results from that care.

Her training in Fleidner's little hospital, with scarcely a dozen beds, was utilized by her with her 10,000 patients, thus

doing away with the modern dangerous idea, that because a hospital is small, a nurse cannot be properly trained in it, or that a graduate from a large hospital is twice as capable as one from a small hospital.

A second contingent of forty-seven nurses came out to help Miss Nightingale; even with these, there was more than enough work to keep all busy, for fever and cholera broke out in the camp.

Miss Nightingale won the victory for trained nursing here so signally that the only question the hospital world has troubled itself with since is how best to train nurses for its service. When Miss Nightingale returned to England, the gratitude of the English showed itself substantially by the gift of a large sum of money. With this she established a fund, which was used to start a training school in connection with St. Thomas Hospital. This is one of the model training schools, and from it our own Bellevue Hospital training school was modelled.

HISTORY OF NURSING IN THE UNITED STATES.

The first hospital mentioned in history in the United States was one on Manhattan Island, in 1658, which was established for sick soldiers. Early in the 18th century pesthouses were built in New York, Charleston, and Salem, Mass. In 1751 The Pennsylvania Hospital received its charter. Private buildings were used for hospital purposes until it was finally built in 1755. The charter of the New York Hospital was obtained in 1771. This hospital was barely completed when it was totally destroyed by fire in 1775 and not rebuilt until 1791. In this hospital Dr. Valentine Seaman gave the first systematic instruction to a class of twenty-four nurses. His course consisted of twenty-six lectures, mostly upon midwifery, but also including anatomy, physiology and pædiatrics. In 1838 the Society of Friends in Philadelphia started a "Nurse's Society," having for its object the elevation of the standard of nursing, and the relief of the overworked Catholic sisters. The Philadelphia Lying-in Charity has given instruction in that line of work for about sixty years.

The Woman's Hospital in Philadelphia has given systematic instruction to its nurses since 1861. The New England Hospital in Boston began its training in 1872. In 1873, training schools were established in the Massachusetts General Hospital in Boston, in Bellevue in New York, and in New Haven the Connecticut Training School for Nurses was established.

In 1875, the training school on Blackwell's Island was established in connection with the department of Charities and Correction. This school was very much needed, as a glance

at the report of the hospital in 1874 will show. This report states that in a fever ward of 40 beds, the only nurse was under six months sentence for drunkenness, and who told the patients a story of a most shameful life with no sense of shame at all. There were no chairs with backs in the hospital, round wooden benches were the only seats, and the only pillow one of chopped straw. In the fever ward the only bathing facilities consisted of one tin basin, a bit of soap and a ragged bit of cloth passed from bed to bed. The committee thought a large number of these patients were hungry every night. Butter was only occasionally used, and the sugar supply had been exhausted two months before. These patients are cared for now by trained nurses, and order and cleanliness are the rule everywhere.

The New York Hospital Training School was organized in 1876, and in 1877 the Buffalo General Hospital Training School. From this time on, training schools have multiplied all over the country, until each little hospital has its tiny training school to care for its patients. The old idea that nurses are born, has disappeared in the later fact, that, no matter what gifts nature starts a nurse with, those gifts must be educated by continual doing and observing until the doing becomes second nature.

In Worcester, the Worcester Training School for Nurses was started in 1883 for a two years' course of instruction. This course has been extended within a year or so to three years. This hospital, the City Hospital, has 150 beds, and the school does the nursing required for its service. Treating annually, as it does, between four and five thousand patients, having a maternity ward, it offers great inducements to nurses who wish a good, all round training. Until recently, it has also supplied nurses for the service at the Isolation Hospital of the city. It has given diplomas to a few male graduates.

Memorial Hospital, of this city, was opened in 1888. It has, at the present time, thirty beds for women, and thirty for children. It is largely a surgical hospital, not of design, but because those cases come to it, and coming, get the treatment needed. The training school consists of twenty-one pupil nurses, and a two years' course of instruction.

The plan of organization of all training schools is practically the same. Nurses are admitted at any time in the year when vacancies occur. This keeps down the undesirable complications which arise when a number of new nurses are admitted at once.

Class work in a training school usually extends from September until June. One to three weekly recitations in nursing, anatomy and physiology, materia medica and therapeutics,

obstetrics and surgery are required. One or two weekly lectures by members of the staff are given on subjects connected with nursing.

The instruction, of necessity, is largely of a practical nature. The art of nursing is taught by doing it, and theory is brought in only as much as is necessary for successful, intelligent appreciation of the how and why of the doing.

Yearly or semi-yearly examinations are given the nurses by a board of examiners, selected by the trustees for that purpose. The questions are mainly of a practical nature. The class instruction is given mainly by the superintendent of nurses. Older nurses also aid in the instruction of the younger ones. As the small hospitals and training schools multiply, the charge of them is often given to a successful graduate nurse, who is matron, superintendent, and superintendent of nurses all in one.

She often has had no experience in hospital management, knows very little of the management of an institution, and may not be used to teaching. This state of affairs is much open to criticism, as nurses trained in that way are not as well trained as the need of the patients demands. To meet this need, and to raise the standard of nursing, a department has been established in The Teacher's College, New York, for instruction in Hospital Economics.

This course requires the Elements of Psychology, Application of Psychology in Teaching, Hospital Economics, Methods and Practice, Hospital and Training School Organization and Supervision, Elective Courses in Biology, Physiology and Hygiene, Domestic Science, Foods—or Food Productions and Manufacture, Home Sanitation and Management, Bacteriology and Household Chemistry.

REQUIREMENTS FOR ADMISSION INTO HOSPITALS.

Unimpaired health and power of endurance are primary essentials. The applicant should start free from any taint of pulmonary disease. The long hours and confinement indoors tend to lower resistance to disease, and thus open the way for infection with the tubercle bacillus.

The age of admission in a training school is between twenty-one and thirty-five years. Blanks are sent to applicants for training. These application blanks are practically the same in the fundamental requirements. Name, date and place of birth, height and weight, civil condition, defects, physical or mental, are all to be noted. Tendencies, especially toward pulmonary disease, rheumatism or uterine disease are especially important. Other abnormal conditions are to be reported. The

sight must be perfect, or corrected by glasses. Hearing and smell must be perfect.

A common school education is essential. A high school education ought to be insisted upon, but at the present time it is impossible to require this. The general knowledge possessed should be of such a character that the applicant can easily and tactfully adapt herself to any surroundings.

Letters of recommendation are required from a clergyman, and from a physician stating the applicant to be physically able to do the work required.

The aim in all schools is to eliminate the servant girl type, and to introduce the better educated "home girl," who works with a more intelligent interest and sympathetic enthusiasm than her humbler sister is capable of, be she ever so willing. After admission, the reading of things expected of a nurse might well appal even the bravest. Quoting from a text-book in use in many schools, "Unimpaired health and power of endurance, intelligence and common sense, are *primary* essentials. She must be of even, cheerful temperament, not easily irritated or confused."

"She must have acute perceptions, habits of correct observation and accurate statement, and some manual dexterity." She needs to be quiet, neat, and capable of eternal vigilance; always in a state of "vigilant repose."

All culture and refinement, all talents and virtues are needed by her in caring for her patients. The broader her outlook, the more content will she be to do her best in the one lonely room she is in, knowing that to her is given a part of the great battle going on between health and disease, and that by her faithfulness, disease may more speedily be done away with.

The nurse's attitude toward her patient must be one of unobtrusive care and thoughtfulness, watchfulness and sympathy. The sympathy must manifest itself in deeds, rather than words. Her whole attitude, expression and atmosphere must be one of cheerfulness and encouragement. She must efface her own affairs, and have no interest but the patient's while she is caring for him.

Nursing properly includes the execution of the physician's orders, in giving what medicine or treatment he prescribes. It also includes the entire care of the patient, hygienic and dietetic. The sick room is also to be kept clean, tidy, and in perfect order. She must accurately observe the patient at all times, note the effect of medicine and treatment, all symptoms that arise, and report in writing each day what has taken place during the physician's absence. This report must be a truthful, uncolored account of what has been done and seen, and no

comment that would bias the physician in any way should be allowed.

A nurse in a hospital ward in training begins her day's work at 6.30 or 7 A. M., and is "on duty" until 7 or 8 P. M. She is allowed $\frac{1}{2}$ hour off for each meal. Besides this she has two hours "off duty" during the day, one afternoon after two for the rest of the day, weekly. Sunday, four or six hours "off duty."

During class time, from September until June, nurses have one to three recitations weekly besides the time off. Lectures, by the hospital staff, are also given once or twice weekly for the nurses. Examinations by a Board of Examiners appointed by the trustees of a hospital, are given the nurses once or twice yearly. The greater part of the instruction, and all the class work, is given by the superintendent of nurses, and in larger schools, by her assistants as well.

Nurses in training do all the nursing in hospitals, caring for all the needs of the patients under the direction of older nurses, medical internes and the hospital staff of doctors.

The nurses are responsible for the good order of the ward, are expected to carefully disinfect all that would be sources of danger to others. In a surgical ward, all the sterilizing and aseptic and antiseptic work is done by them, under careful supervision. This requires a wide knowledge on their part of how infection spreads, and thus how it may be prevented.

The tremendous energy there is in a few pathogenic bacteria when they gain access to a patient with lowered vitality is almost incredible. One of the hospital proverbs, that "a dirty finger nail may cause a person's death," may be literally true. Thus it is necessary that all care be taken honestly and conscientiously, not merely to go through the form of disinfecting, but the spirit of aseptic cleanliness must be alive in each individual nurse.

On entering the hospital, a nurse begins her work rather gradually. She assists the older nurses with their work, aids in serving food, cleansing utensils, keeping order in the ward and rooms connected with it. The dusting in the hospital ward is a large item, being done each day with a damp cloth, and some disinfectant being often used. The new nurse thus gradually becomes accustomed to the atmosphere of sickness, takes in details almost unconsciously, and if she shows herself apt to comprehend, quick to grasp a new situation and not afraid of work, she is given gradually more responsible work to do under competent oversight, until it is seen that she can be trusted to do the proper thing at the proper time. In English training schools, nurses on entering have a much greater proportion of "menial" work to do than in American schools.

They are allowed, however, with the consent of the older nurses, to wash the patients' heads and feet twice a week.

At the end of the month or two of probation, if the nurse has worked satisfactorily, she is accepted as a regular pupil nurse, and is allowed to wear the uniform of the school. A girl often develops wonderfully as she realizes the responsibility and care that she is expected to meet, and that on her quick appreciation of a situation depends often the treatment ordered by the physician, and that the life of the patient often depends on this quick recognition of affairs. The instruction in a training school is necessarily largely of a practical nature. Nurses are taught to do by doing, and repeatedly doing, until the repetition becomes second nature.

Each school also requires a certain amount of class work, depending somewhat on the number of patients, and the relative number of nurses to patients.

The rather long hours, and the depressing effects of being with sick people constantly, makes mental work very hard for the nurse. Add to this the fact that a large proportion of nurses have been out of school for a long time, and that even when in school, their attainments were not sufficient to enable them to do much independent thinking, the difficulty of insisting on a high standard of class work is better appreciated. It is repeatedly noticed that nurses who do superior work in the wards are often deficient in their class work. Thus the perplexing question comes up with each recitation how much to excuse and how much to insist on as a standard. Class work is given in the principles and practice of nursing: Anatomy, physiology, hygiene, obstetrics, materia medica and therapeutics and children's diseases, all have some time devoted to them.

The principles of modern surgery are taught by the actual daily work in surgery. Nurses gain a knowledge of the principles of bacteriology in a general way. Massage is also taught by practical exercises in most schools.

Probationers are given written examinations in which their spelling, penmanship, arithmetic, and English grammar knowledge is scrutinized. Questions are also asked that bear directly on what they have seen and learned in the ward, and in this way the quickness of observation and comprehension is ascertained.

The class of applicants consists of girls who have been teachers, bookkeepers, stenographers, clerks, saleswomen, servants and shop-girls. The teaching has often to be of a very simple character, to be understood. Much time is lost in this way in teaching the fundamental things that might much better be spent in technical teaching.

The power of close attention and of continued attention has to be acquired by these girls, and there is necessarily much repetition. The ability to observe accurately, to describe intelligently, to give an unbiased, uncolored statement of what is observed is very hard to acquire, and some never do it.

Unvarying kindness, courtesy, and thoughtfulness is required from each nurse both to the patients and to each other.

The ideal nurse needs to be neat and attractive in appearance, and of pleasing personality. A great deal of tact is necessary to care for her patient without antagonizing. She must be firm without being obstinate, know when to yield gracefully to her patient's wishes, and when to gently, but unyieldingly insist on compliance with the prescribed treatment.

She must be a good housekeeper; for her especial kingdom, the sickroom, needs neatness as its keynote of management. She must be acquainted with the principles of sanitary and domestic science, and realize that on the abundance of fresh air, sunshine, pure water and cleanliness depends more the well being of her patient than on all the drugs in the Pharmacopœa without these.

She must be able to use her hands skillfully, yet gently and firmly, giving her patient at once the impression of gentleness, strength and support. She must know the diet used in different diseases, and in different stages of the same disease. She must know the food value of different articles of diet, and when a cheaper, but equally nutritious article can be replaced for one more expensive.

Her knowledge of materia medica and therapeutics must cover the commonly used drugs and their preparations. She must be acquainted with their range of doses, their physiological and therapeutic action. If poisonous, she must know the symptoms expected from overdoses—also the principles of treatment of poisoning of all kinds. She must quickly decide whether emergencies are of sufficient importance to call a physician, or if she can deal with the point at issue herself. A well trained nurse never prescribes, yet she must know the common household remedies and be able to use them while the physician is on the way.

Her knowledge of anatomy must be sufficient to know the location of organs, blood vessels and nerves. Her knowledge of physiology should cover the normal processes of respiration, circulation, digestion, assimilation, secretion, excretion and reproduction. With this knowledge of normal processes, she can easily decide whether pathological processes are impending or actually in existence.

Her knowledge of the physiology of the central nervous system should be broad enough to recognize the effect of disease

at once on the mental outlook of the patient, and carefully weigh the effect of disease on the person's individuality. Her knowledge of general diseases must be broad enough to cover the general course of each disease, know its ordinary complications, and the special emergencies needed to be guarded against. Her knowledge of the infectious and contagious diseases must cover the way in which these diseases are spread through the community. Thus she can prevent contagion to a great extent. Her knowledge of bacteriology must be sufficient for her to know the common avenues of infection both of wounds and of people generally when resistance is temporarily lowered from fatigue, sickness or injury. The principles and practice of our modern aseptic surgery must literally be in her finger tips, for on her avoidance of sources of infection the success of all surgical operations depends.

THE IDEAL TRAINING SCHOOL.

It is too soon in the history of nursing to expect an ideal training school. Each school and each hospital has its own ideal toward which it is struggling, now faster and now slower. There are many things to criticise in the training school as it now exists.

The school has been called into existence by the hospital as the cheapest and most efficient way in which its nursing can be done. The long hours of duty, with the resulting fatigue, make much study by the pupil nurses out of the question. The problem each hospital is working out for itself is how to increase its number of nurses, and decrease the hours of practical work, thus giving more time for class work. Class work also needs to be of a more varied character.

Beside the technical training necessary, elementary physics and chemistry should be added to the regular course. Instruction in domestic science and sanitation should be thorough. The chemistry of foods, as well as methods of preparations, ought to be carefully taught. History, English literature, psychology (elementary), biography, political economy, and sociology might well be added to the curriculum. Nature study of some kind should form part of the course, both for the nurse's own benefit, and as a therapeutic resource for the benefit of the patient. When a course on this line can be given nurses, when instead of the hospital giving nurses, as it does now, \$6-\$14 monthly for personal expenses, nurses pay a small amount for their instruction, while the hospital takes the money used to defray nurse's personal expenses, to employ more and better equipped instructors, we shall at once see our ideal training school near at hand, and suffering humanity much better cared for. The nurses will have more individuality,

and be freer to enjoy what now is almost grudgingly given them in return for service rendered.

MARRIAGE STATISTICS.

Buffalo Training School for Nurses.

231 graduates.

27% married.

Bellevue Training School, New York.

604 graduates.

18 + % married.

Presbyterian Hospital, New York.

124 graduates.

19 $\frac{1}{3}$ % married.

City Hospital, Worcester.

144 graduates.

19 $\frac{1}{2}$ % married.

Memorial Hospital, Worcester.

61 graduates.

Nearly 23% married.

Waltham Training School for Nurses.

144 graduated.

13 + % married.

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SOME RECENT CHILD-STUDY LITERATURE.

By ALEXANDER F. CHAMBERLAIN.

The following notes on recent child-study literature are concerned chiefly with articles, which, by reason of the publications in which they appear, or the language in which they are written, are rather unlikely to be familiar to the generality of those interested in the child and in childhood. Some of them, however, are of prime importance in the special fields with which they have to do, and deserve more than a mere passing notice by title.

Growth in Stature. Koren's *résumé* of the result of the measurement of 1,284 Swedish soldiers in their twenty-second and again in their twenty-eighth year is of interest as revealing the fact that considerable individual growth in height takes place after the twenty-second and some even after the twenty-eighth year. Of the soldiers in question only 10.52% showed no change during the seven years (1893-1899), while 6.07% showed a decrease, and 83.41%, the vast majority an increase. During this period the average height of the soldiers increased from 1697.1 to 1713.4 mm., or 163 mm. The measurements of 48 soldiers for 1898-1899 indicated an average increase for the year of 10 mm.

Somatic Characters and Intelligence. Dr. Schliz's detailed study of the primary physical characteristics of 5,736 school-children (aged 11-14 years) from the region about Heilbronn leads him to the following general conclusions: 1. Color-types are not absolutely primary race-classifiers. 2. In the case of Heilbronn there is no marked drift of dolichocephalic (long-headed) individuals towards the city. 3. The order as to intelligence appears to be: Dark long-heads, blonde long-heads, pure brown short-heads, blonde short-heads.

Anthropometry and Physical Education. As the results of extensive comparative measurements of growth of "gymnasts" and "non-gymnasts" (aged 14½ to 18 years) at the military school of St. Hippolyte-du-Fort, Godin comes to the following among other conclusions: 1. Gymnastics with apparatus (the fixed bar was the favorite) does not hinder growth in height of body. 2. It gives a greater amplitude of chest than would be spontaneously developed. 3. It increases the density of the tissues and the body-weight. 4. It favors equality of growth

in volume of the four members, simultaneous enlargement of the thorax and pelvis, etc. 5. Regulates in a general way the vital phenomena manifesting themselves in the morphologic growth of the organism. But, in order to attain such good results "the study of growth must *precede* the study of physical education, the modifying agent." Dr. Godin's article is accompanied by 13 curve-diagrams and 18 tables. Another paper on measurements of boys of 13 years of age is promised in the near future.

Children's Use of Plants and Flowers. The literature of the use of plants and flowers by children is not very extensive. The present writer, in his book on *The Child* has a little to say on the matter, and some data are included in Mrs. Bergen's *Animal and Plant Lore*, but an exhaustive study yet remains to be made. For German Bohemia and Lower Austria this has been done by Blümml and Rott, whose article cites 106 species of trees and shrubs, plants, flowers, etc., which in whole or in part, unchanged or "improved," "raw" or "manufactured," are used, in some fashion or other, by children in their games and plays, arts and industries, or for purposes of food and drink, "medicine," clothing and ornament, weapons and implements of various kinds. The number of uses to which children put these things is astonishing,—and the authors have certainly not included them all in their list. The discovery of an animal or a human form in certain flowers is often quite ingenious. Indeed, zoomorphy of this kind might well be the subject of a special essay. Certain sex-predilections are also to be noted.

Swiss Children's Songs and Games. Miss Gertrude Züricher's "Children's Songs and Games from the Canton of Bern" is of great interest as containing nothing but what is known to have been used by children themselves or by adults having to do with children as vouched for by the latter. All the material also was obtained from oral recitation. Exclusive of an Addendum of 31 numbers, the volume records 1,065 items distributed under various rubrics as follows: Lullabies 33; children's prayers and blessings 16; prayers to St. Nicholas 3; charms 15; jest-rhymes 49; finger-plays 30; "ride-a-cock-horse" rhymes 67; marching and dancing songs 29; rain and snow songs 14; "what the bell says" 13; New Year's and carnival songs 14; out of school 17; animal-rhymes 48; about food and clothing 40; dialogues, raileries, topsy-turvies, etc., 46; chain-rhymes, etc., 24; "counting-out rhymes" 98; satirical verses, street-cries, parodies, 179; secret languages, misplaced accent, exercises in talking quick 33; rhymes and songs of adults used by children 27; plays and games 130. The melodies of a number of the songs are also given. The author remarks that, although the making of willow

whistles is well-known and well-liked by the boys of Bern, the interminable series of "bark-loosing" rhymes so common in Germany seems to be entirely absent. The Bernese children call St. Nikolaus *Santi Chlous*, *Zantigglaus*, which brings them quite close to our own (p. 15). The favorite secret languages of Bernese children are the *B-*, *Re-*, and *Adi-* languages (p. 93). The following adult composition found its way into the mouths of the children (p. 113):

Mein lieber Lulu
Geh nicht zum Zulu,
Geh nicht zum schwarzen Mann nach Afrika;
Sie werden schiessen
Mit Pfeil und Spiessen,
Dann ist mein lieber Lulu tot.

Several variants of this song are reported. The "Reise nach Amerika" is not forgotten (p. 114).

This carefully compiled volume has in it much to interest not merely the folklorist but the lover of childhood and all its works as well. It adds much to the store of Teutonic material in Böhme's *Deutsches Kinderlied und Kinderspiel* (Leipzig, 1897), the best recent general treatise on the subject.

Development of Language. Among recent discussions of the origin of language and of languages the essay of Dr. Rodolfo Lenz is one of the very best. An authority upon at least one stock (Araucanian) of American aboriginal speech and a German long resident in a country where Spanish is spoken and written, his opinions upon matters of linguistics are of great importance. The results of his investigation into the comparative difficulties (phonetic, grammatical, syntactic, etc.) of Spanish, French, English and German are suggestive for language-teachers and language-learners. They are based in part upon his own observation of the linguistic development of the children of German, French and English settlers in Spanish America. Dr. Lenz doubts if there exists always an innate disposition in the child for the language of its parents.

Child and Savage. In his brief but interesting article, Dr. F. von Luschan, the eminent ethnologist, takes occasion to clear away some of the absurdities put forward by casual visitors and travellers of a day concerning the mind of primitive man and its resemblance to that of the child, pointing out the real likenesses between the two and giving instances of real child-actions on the part of unspoiled primitive peoples. Every devotee of child study ought to read this essay as well as the equally illuminating address of Dr. Franz Boas, *The Mind of Primitive Man*, in which the question of the mental character and capacities of civilized and uncivilized men is authoritatively discussed.

Child Art and Savage Art. Mr. David Boyle's brief notes on *Primitive Art* are illustrated by the reproduction of thirteen drawings of the human figure by children in the kindergartens of the city of Toronto, Canada. Mr. Boyle expresses the opinion that, in the matter of art, "whether we say that the savage is but a child, or the child a mere savage, is quite immaterial." In connection with this discussion one ought to read also Regnault's article on *The Physiognomy in Savage Art*, in which the author holds that savage and barbarous tribes have been more successful than is generally believed in their attempts to portray the human physiognomy.

Portuguese Child Study. The author of "Notes of a Father" is a distinguished Portuguese educator, who is also Professor of Anthropology in the University of Coimbra, the imprint of whose publishing department this little volume bears. Professor Machado has also shared in the political life of his country, a fact which has enabled him to enliven his pages with many apt and interesting parallels with the facts of childhood from adult social phenomena. The book is not divided into chapters, but consists of notes on an infinite variety of topics concerned with the thoughts and actions of his own children in particular, from the early months of life until their passage out of childhood. The style is attractive and pleasing, and the many valuable facts recorded would have been made more easily accessible by the addition of an index. The author gives us the Portuguese analogues and pendants of the gracious and ungracious things about the child to be found in our English and American chronicles of his sayings and doings: Motor-riot, photophily, arithmomania, verbal intuition, pleasure of ending or finishing anything, love of witch-stories and fear of witches, creative fancy and resurrective memory, play with ideas no less than with things, grammatical obsession, hypnosis of textual repetition, day-long games, socialization of childhood, work and rest, punishment, egoism and altruism, plasticity and individuality, diplomacy and *savoir-faire*, animism, morals, school and home, children and adults, foreigners, travel, sisters and brothers, politics, books and pictures, religion, etc.

A good specimen of the mixture of adult and child philosopher occurs on page 473: "'Exercise is as necessary as food,' I had said to Gigi. Entering my study after dinner, she observed: 'Papa, I've eaten everything, everything on the plate. And now I must do this.' And she began to dance in front of me."

When three years of age little Gigi got off a pun, which must be appreciated in the original (p. 181): "At dessert

Gigi was offered a tart (*torta*), whereupon she remarked 'Quero a *torta* e quero a *direita*.'"

An interesting part of the book is the author's epigrammatic and axiomatic reflections on pedagogical and sociological matters suggested by the phenomena of child-life under his eyes. Some of these may be cited here:

Emotions are long-lived. Children gesticulate with all their body. Light is joy. Fear paralyzes knowledge. There are emotive talents,—some persons need warming up to think. Better no explanation than a bad one. Effort is the soul of evolution. There ought to be a large margin to the personal life of children. Like primitive peoples and savages, children lose an immense amount of time in contests and debates. Harmony of minds is the most delicate work of civilization and culture. The end of man is creation, not mortification. All the faculties are sociable. This is the century of the small and the weak. Government and education are reciprocal. Nothing is born of minutiae and ratiocination. Being well and being ill are "catching." The distempers of automatism need conquering. There is an intellectual glut-tony. Moral inertia is worse. Social commerce, comradeship, are indispensable to the formation of character. Education can never be a trade. There is no traditional error that can withstand inoculation with the blood of youth. Ignorance easily changes to hate. The aristocracy of intelligence is not less cruel than the others. Ignorance is explosive mental instability. Learned and incapable are the majority of the graduates of our schools. Egoism transforms itself into negligence. The citizen cannot be improvised. Education, like government, must prevent not repress. There are no diseases, only sick people. We live by our imagination. Education is not to be anticipated. Art is cordiality, industry service, science duty. Love is a school of toleration. Idleness is optimistic. First children always suffer from the inexperience of their parents. To have something to do is the first principle of all education. Vagabondage is a vice, but it is, nevertheless, a mental resource for children, by which they escape the narrowness of the school and the vacuity of the home. A certain disorder, effervescent it may be, of the will, is an indispensable gymnastic for the eternal apprenticeship to order. Simplification of instruction is absolutely necessary. There is a normal limit of elasticity for all our acts. The greatest triumph of the teacher is in the absence of discipline. All knowledge has its roots in the most common conceptions. Change of determination is not always repentance. The psychology of the child is fundamental in education. To listen is to observe, to speak is to act. Our century democratizes everything, even duty.

Dilettanteism is a form of sensualism. There is some difference between a soul and a clock,—let us not mechanize everything. We must not confuse luck with superiority. Art precedes industry, industry science. Social love conquers all appetites. One must not moralize too soon. Study cannot abolish social obligation. To do good is more than to think or to know. Morality is not a new science, art, or trade; it is the supreme generalization of all the sciences, arts and trades, their humanization, their universalization. Science cannot do without conscience. Pleasure socializes. Fear of great duties is as bad as contempt for little ones. Woman is born a teacher. Explanation is not always justification. No society can be directed by government alone,—in order to make live one must live with. The spring of life solicits children on all sides. The school must not teach servility. Nothing moralizes children like the sight of their parents; nothing moralizes parents like the sight of their children. There is but one immortality—that of good deeds. There is no gymnastic like that we have with our children. Human life is a life of the soul, of the heart.

To an American, the most satisfying thing about Professor Machado's book is the real democratic spirit that pervades it. It is human no less than scientific, and one feels that he lives with his children as well as for them and in them. One is refreshed after reading a book about the child by an author who retains his humanity.

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THE ORIGIN AND DEVELOPMENT OF JEWISH EDUCATION.

By G. HAROLD ELLIS, Fellow in Clark University.

At the dawn of their history we know the Jews as Arab nomads settled in the hill country of Palestine and dividing their time between agriculture and war. How they came to exchange their roving life of the plain for that of the agriculturist, we have only their traditions handed down through long generations, but from them we may derive what is essential in our quest—the historical development of their religious and social institutions. What the Jews originally were can be inferred from a study of the modern Bedawin who have remained practically unchanged in historic times.

This change from a Bedawin tribe to the Jewish nation was brought about by a forced emigration from the old seat to Palestine, where the new conditions of life gradually changed them into an agricultural people.

Palestine is one of the most remarkable geological formations in the world, and the influence of the physical features of the country on the development of Jewish character has long been timidly held, but under the anthropological investigation of environment it has been made a scientific fact.

Of the factors of evolution, environment is by far the most potent and modifies both heredity and self activity. Variation in species is the proof of the one, and in the light of what has been said of it in biological studies, needs no comment here, while O. T. Mason (7)¹ has given abundant evidence of the other.

As compared with its psychical influence environment has but little to do with the physical man, and hence one must consider the intellectual development as the matter of chief concern in human evolution (8). Self expression of man is in accord with his environment. The art of the Esquimo, the California Indian, and the Pueblo is of a nature corresponding with the material accessible—walrus bone, burned brick or volcanic rock. (7, pp. 556-661.) Food, dress, and home life are all dependent upon the character of the environment. Japan is a typical example of this (6).

¹Numbers in parentheses refer to bibliography at the end of this article.

Turning to the Jew we have in his physical surrounding the explanation of his character. This is seen in their literature, is generally taught by even the most conservative of Biblical scholars, and has been recently admitted by Prof. G. F. Wright, of Oberlin, who says, "The peculiar development of Israel demanded isolation in a peculiar country. Otherwise they would have been amalgamated with the more numerous, more powerful, and more civilized heathen around them, and their exclusive religious development would have been rendered extremely difficult if not impossible." (9, p. 360.)

In religious matters the Bedawin have but little sense of moral claims, though the name of Allah is continually on their lips. In this they are closely akin to the early Jews in the Old Testament, who were crafty, treacherous, adventurous, brave and vengeful in war. These characteristics are ascribed to the Old Testament heroes. The craftiness of Jacob (Gen. 27:30, 37-43) is proverbial, while David's unkind thoughts on his death bed go uncondemned (1 Kgs. 2:5, 6, 8-10), though he elsewhere (1 Sam. 24:4, 5; 1 Kgs. 2:7) shows a different spirit. Nowhere as in the Psalms is the passionate spirit of the Jew, shown in these two aspects just given, so well expressed. From the most profound religiousness (Ps. 23, 42, etc.), the thought goes to the other extreme of most bitter imprecations against their enemies. (Ps. 35, etc.) The Book of the Covenant (Ex. 21:22-22:33) shows by its very condemnation of vices that they were alarmingly common, while the stories told of the Patriarchs (Gen. 12:10-20; 20; 26), of Samson (Judges 13-16) and David (1 Sam. 25, etc.), show that the popular conceptions of these heroes were not always edifying or even moral.

The softening influence of culture gradually brought out the higher ethical ideals, but the events of the Maccabean period and the later struggle with Rome showed that the old fire had not died out, and only needed a little fanning to kindle it into more than its old fury.

Prof. Ripley has shown (10, p. 391) that the old theory of Jewish purity of blood is a myth. Being forced by stress of environment they have adopted the language of the people among whom they settled, and mixed somewhat with them. Deprived of civil rights and persecuted they had no other refuge than their religion. In proportion as adversity comes does man rest upon God. Added force is given to this from the history of the Jews in ancient times, and also from the fact that to-day they are "orthodox" only in the countries where they are persecuted.

Our conclusion, then, must be that the Jews began low down in the scale of culture and gradually developed through

the same stages that other peoples have passed. The stages of development of a nation's educational system coincide with the periods of its life. The one is the reflex of the other.

Many works on Jewish education have failed to give a correct view of the matter because the relation of history to the mental development of the people was not recognized, or because the arrangement of historical material was made from an *à priori* dogmatic point of view. An enormous literature on Jewish education has grown up but the lack of scientific accuracy has made it almost worthless.

The treatment of the subject of the early Jewish education will be divided under the following heads, conforming to the periods of Jewish national history:

1. From the beginning of history to the Exile (c. 1000 to 586 B. C.).
2. From the Exile to the founding of Alexandria (586 to 332 B. C.).
3. From the founding of Alexandria to the fall of Jerusalem (332 B. C. to 70 A. D.).
4. From the fall of Jerusalem to the final dispersion of the Jews (70 to 135 A. D.).

I. *From the Beginning of History to the Exile.* (c. 1000-586 B. C.)

Jewish history begins with the founding of the kingdom, about 1000 B. C. During the early years of the occupation of Palestine the Jews lived in a state of anarchy. (Judges 17:6; 18:1, etc.) Several attempts had been made to unite the tribes (Judges 8:22 ff.), but with no success until the time of David. With the advent of peace came the opportunity of cultivating the arts of peace.

Education, if such can be said to exist, was domestic and private. The sons were taught to hunt and till the soil, and when approaching adolescence were taught the meaning of the simple cultus and were thenceforward treated as men.

The initiations of adolescents into the state have been carefully treated by Dr. G. Stanley Hall (11) and Dr. A. H. Daniels (12), but neither bear directly on the early significance of circumcision and initiation ceremonies among the Semites. From Joshua 5:2 ff. and Exodus 4:24-26 we have two accounts of the institution of circumcision which give us to infer that among the Jews, as among other primitive peoples generally, it was performed upon young men at adolescence and just before marriage. As the Jews grew in culture this bloody rite was modified, the original political meaning was forgotten and a religious interpretation given it. This being the case, the rite was no longer delayed until approaching manhood and mar-

riage, but was performed as soon as safe in order to bring the child into covenant relations with God as soon as possible (13-16).

This initiation constituted the whole of the boy's education, with the possible exception of the few among the higher classes who may have been taught by such of the priests as knew the art of writing. However this may be, it is certain that the people who were not educated, in a literary sense of the word, soon made progress along that line, as the Moabite stone (21) (erected by Mesha, King of Moab about 850 B. C.) and the Siloam inscription (about 700 B. C.) presupposed an ability to read on the part of the persons who would see them.

As to any education of girls, that was never thought of.

This period marks the golden age of Hebrew literature, but too much must not be inferred from this, for the greatest literature of any people is not produced in the days of its intellectual greatness, but in the transition stage from the oral to the written transmission of tradition, when written language has all the expressiveness of oral speech, and is as yet untrammelled by the artificialities of grammarians. Just in proportion as grammatical perfection has been insisted upon has literature declined.

The Jewish literature of this period covers a wide range of topics. From the stories of Samson and the patriarchs we can see that the people appreciated a good story even if it was not of the highest ethical character. The song of Deborah (Judges 5) is probably the oldest piece of Hebrew literature, and is one of the finest productions in any literature (22, 23). Higher in moral worth, though below the song of Deborah in literary value, is the Book of the Covenant (Ex. 20:22-23:33) which represents the thought of the people near the beginning of our period, and deals with the civil side of the life of an agricultural people. This code reveals a somewhat advanced conception of morality but only within the limits of the tribe.

One of the most remarkable phenomena that we meet in this period is prophecy. While not belonging to education in a strict sense of the word, its influence upon the mind of the people must have been stimulating to thought, and after all the object of a true education is character building.

Perhaps the most notable stimulus to educational effort by the prophets is to be found in the work of Hosea (c. 746-734 B. C.) which was instrumental in bringing out the Book of Deuteronomy the century following in the southern kingdom.

The "Schools of the Prophets" (which by the way is an un-Biblical expression) have figured prominently in many works dealing with Jewish religious and social life, and have been termed Theological Seminaries, have had no existence ex-

cept in the imagination of modern writers, and the idea of such "Schools" is based on a misunderstanding of the text of the Old Testament. All we are justified in saying is that there were a few centers where men of prophetic spirit formed brotherhoods called "Sons of the Prophets" for the purpose of stimulating devotion through a common life, much as in the monasteries of later times, in which edification not education was the object aimed at. Prof. G. F. Moore has said that the Schools of the Prophets were "schools" in exactly the same sense that schools of fish are "schools."

Though there was nothing like systematic instruction of children, we are given to infer that among the wealthy tutors (from among the priests) were not uncommon. Toward the close of this period a knowledge of reading and writing is assumed, and when the Book of Judges was compiled, it was nothing remarkable for a boy to write. (Judges 8:14.)

II. *From the Captivity to the Founding of Alexandria* (586-332 B. C.).

In 722 Samaria was taken by Sargon, and according to the Biblical account the whole surviving population was transported to Mesopotamia and Media. (2 Kgs. 17:5-6.) In 586 Nebuchadnezzar took Jerusalem and transported the people. (2 Kgs. 25:1-7.) There is reason to doubt this wholesale transportation and understand by it the removal of the ruling and artisan classes—the aristocracy. This left the lower classes in Palestine, and gave the better class a chance to develop in their new environment. A second winnowing occurred when Cyrus in 538 allowed the exiles to return home. The returning exiles represented the deepest national and religious element of their people.

The Exile was an active literary period, to which belong the work of Ezekiel and Deutero-Isaiah. The influence of Persian thought is seen in the development of a monotheism and a demonology.

Sacrifice was impossible in a strange land as Yahveh, their God, was localized in Palestine. (Ps. 137.) The only thing the people could do was to interest themselves in the past, and in the study of the literature they then possessed. Ezekiel 40-48 may be taken as indicating the line of interest. Psalm 137:1 gives the beginning of the synagogue.

The arrival of Ezra at Jerusalem was an epoch making event in the religious and educational history of the Jews. The account of the Book of Ezra-Nehemiah is most complicated, and is a compilation long after the events recorded, but the essential facts that interest us here are easily obtained. Ezra collected the people and read them the Law (the Book of Deuter-

onomy in a much abbreviated form). From that time the Torah was the regulating norm of life. That the change might become permanent, study and instruction in the Law were necessary. This work the synagogue was called upon to perform. Previous to the Exile the Jews were a people with a traditional religion, henceforth they appear as the people of a Book, to read and understand which was the goal of educational ideals.

The synagogue was not a place for worship as much as religious instruction. In the Gospels, *διδάσκειν* is always used with reference to the synagogue service.

We now feel sure that the command of Deuteronomy 6:7-9 was actually carried out for the first time. "And thou shalt teach them diligently unto thy children, and thou shalt talk of them when thou sittest in thine house, and when thou walkest by the way, and when thou liest down, and when thou risest up." But even then there was nothing like systematic instruction.

The manner in which the great feast of the Passover was made an object lesson is a matter full of pedagogical interest: "And it shall come to pass when your children shall say unto you, what mean ye by this service? that ye shall say, It is the sacrifice of Yahveh's passover, who passed over the houses of the children of Israel in Egypt, when he smote the Egyptians and delivered our houses." (Ex. 12:26, 27.)

Other lessons of a like character are seen in Leviticus 23:43 and Joshua 4:5-7: "Ye shall dwell in booths seven days . . . that your generations may know that I made the children of Israel to dwell in booths, when I brought them out of the land of Egypt."

"And Joshua said unto them Pass over . . . into the midst of Jordan, and take you up every man of you a stone upon his shoulder, according to the number of the tribes of the children of Israel; that this may be a sign among you, that when your children ask in time to come, saying, what mean ye by these stones? ye shall say unto them, Because the waters of Jordan were cut off before the ark of the Covenant of Yahveh . . . and these stones shall be a memorial unto the children of Israel forever."

A leading feature of this period is the rise of the Scribes, who were an independent organization devoted to the study of the Law. They identified themselves with the popular interests, and ever remained true to the faith even when the priesthood became corrupt. Gradually they supplanted the priests in the hearts of the people. At a very early date they began education of children.

III. *From the Founding of Alexandria to the Fall of Jerusalem* (332 B. C. to 70 A. D.).

The characteristic of this period is popular education, but even here, again, there was no systematic teaching. There is noticeably a reaching out of the Jewish mind after science and Greek culture. With the founding of Alexandria came the influence of Greek thought upon the Jews. Thousands of Jews were settled in Alexandria and given special privileges by the Ptolemies. Here the Septuagint version appeared. The influence of Hellenism gradually increased until the Maccabean struggle, after which it ceased to be dangerous. Greek methods were introduced even into Jerusalem. Ecclesiasticus, written in the height of Hellenistic influence, shows unconscious traces of its influence.

By the time of the author of the Book of Chronicles (c. 300 B. C.), the Scribes were an organized guild.

The Elementary Schools (Beth Hassepher or House of the Book). There is a tradition, quite generally accepted, that Simon ben-Shetach, brother of Queen Alexandra, in 75 B. C., introduced a compulsory attendance of children at the elementary schools. These schools were distinctly religious, the text-book was the Law, the teacher was a synagogue officer and the schoolroom was in the synagogue. A general idea of methods is easily obtained. Instruction was oral and accompanied by a generous use of the rod. The alphabet may have been learned by means of the "Alphabet Psalms," and numbers from some such method as seen in Proverbs 30:11-31; 6; 16-19. Another method may be seen in the Athbash in Jeremiah 51:1, 41. A remarkable parallel to this scheme of education is in the famous "New England Primer."

The Book of Proverbs is especially a pedagogical work embodying the best thought of the times. The frequent mention of the rod is to be noted; to spare it is to spoil the child. The duty of parents to their children, and of the children to their parent is often dwelt upon. A remarkable thing about Proverbs and the "Wisdom" literature, in general, is the emphasis laid upon the objective good that is the reward of "wisdom." Utilitarianism prevails; there is no appeal made to God's revealed will in any way. Viewed from a standpoint of modern pedagogy, the Book of Proverbs has much of value, but the form of the teaching (antithetical), and the negative aspect of virtue are anything but pedagogical.

Education of girls was not planned for in the elementary schools. Mothers instructed the daughters in the practical arts of the housewife (which the modern "female seminary" usually omits from its curriculum). See the acrostic on the ideal

wife—more ideal than real—in Proverbs 31:10-31. But we must not suppose that it was not customary for women to know the Law. The high position of woman among the Jews made it possible for them to learn of the Law, while Luke 1: 46-55 reflects the idea that it was not unusual for women to be able to quote Scripture.

The College (Beth Hammidrash or House of Study). This institution existed for the professional training of the Scribes and priests, but of its history we know nothing, but we may feel sure that it developed from a humble beginning. About the time of Christ they were common especially in Jerusalem.

The work of the scribe was threefold:

1. To find what the Law really was. This corresponds to the modern "undergraduate" course of study.
2. To give instruction to others, especially the children. This constituted most of his work.
3. In addition to his work as a teacher, the scribe was often called upon to preside as judge in a justice court. As the Law was the civil as well as the religious code it was necessary for the two offices to be united.

In these higher schools the Halachah or scientific exegesis of the Law was the all important matter of study. Owing to the literalness of the interpretation of the Law, the differences in the codes embodied in the Torah were harmonized by casuistry, and what might have been a stimulating study became a matter of moral degeneration. In addition to this the scribe never made an interpretation of his own but quoted a decision made by some one before him, and hence originality was killed. It may be doubted whether the criticism of the Scribes and Pharisees by Jesus was directed against individuals so much as against the system.

Greek and the sciences are said to have been in the curriculum of these higher schools, but both were so uniformly looked down upon that it may be seriously doubted whether Greek was ever a common study in these schools, and as to the sciences, only enough was studied to enable one to understand the calendar.

Instruction was free, and as a means of sustenance every scribe had a trade. The only fee that could be collected was the scribe's travelling expenses. The feeling of Paul on these matters were largely due to his training in the rabbinical schools, and to the desire to do as much for Christ as he before did for the Law.

In Jerusalem the scribes taught in the temple courts. In the discussion of questions every one had a right to take part. Luke's story of Jesus among the Doctors gives a picture of the custom of the times.

The most noted of the schools were those of Hillel and Sham-mai. The grandson of Hillel, Gamaliel I, was the most noted teacher of his day, and it was a matter of pleasant memory to Paul that he had sat at the feet of the illustrious teacher.

From Paul's reference in Acts 22:3 we learn that it was customary for the pupils to sit before their teacher who probably occupied a raised seat, but Luke 2:46 gives us to infer that it was not always the case.

From the expression—"Scribes of the Pharisees," we infer that the Sadducees had scribes as well as the Pharisees.

The Gospels assume, from the frequent mention of the scribes, that the elementary schools were common, and their great influence and prominence may be seen. (Mat. 23:6, 7; Mk. 12:38, 39; Lk. 11:43; 20:46.) The title "Rabbi" was not in use until after the time of Jesus.

An interesting commentary on the education of the time is that of Jesus. He never attended one of the rabbinical schools (Mk. 6:2, 3), and this allows us to see what advantages the common people had. His knowledge of the Scriptures was very remarkable and unchallenged. He could read Hebrew, and was often called upon to officiate in the synagogue. (Lk. 4:16; Mk. 1:21, etc.) This ability was not common as the popular tongue was Aramaic. As a child the earliest thing learned was the "Shema" or Jewish confession of faith.

Even as late as 57 A. D. Greek was not commonly spoken, for to the surprise of the centurion Paul was able to speak Greek to the Hellenistic Jews, though he actually spoke to them in Aramaic. (Acts 21:37-40.) Josephus was used by Titus in 70 A. D. as interpreter, so Latin as well as Greek was not commonly known among the Jews at that time. From Paul's knowledge of Greek and from some other sources we are led to infer that it was taught in a few of the rabbinical colleges, but even there with some disfavor. The knowledge of Greek literature that Paul shows is of a popular nature and not the result of first-hand study.

IV. *From the Fall of Jerusalem to the Final Dispersion of the Jews (70 to 135 A. D.).*

The great war with Rome began in the year 66, and though Titus took Jerusalem in 70, after a long siege, the war continued until 73 when Massada fell. Peace came then, but it was the peace of the grave. Jews were forbidden to come to Jerusalem on pain of death, and the temple tax was turned to support the temple of Jupiter Capitolinus. The one gathering point which remained for the Jews was the Law. About this they gathered with the firm faith that it would come again to have authority. Soon after this the Jewish temple

at Alexandria was closed and Jamnia became the chief seat of literary activity. Here the study of the Law was taken up with a zeal before unequalled. The temple ritual was carefully taught that when deliverance should come there might be those who could perform the sacred rites in proper form.

Messianic hope grew stronger, and a rebellion occurred in 115-117 under Hadrian, and in 132-135 a more violent outbreak was led by Bar Cochba, "Son of the Star," a name taken from the supposed fulfillment of Numbers 24:17. The rebellion was put down with great severity. Hundreds of thousands were put to death, and multitudes sold into slavery. Every trace of Hellenistic Judaism was destroyed by this war, and Pharasaic Judaism became supreme in the thought of the people.

One product of the school of Jamnia, and to which Christianity is forever indebted, is the Massoretic Hebrew text of the Scriptures. Renewed study of the Law brought out the need of an accurate Hebrew text. Under Rabbi Akiba a single consonant text was chosen as the archetype from which all copies thereafter were to be made, and all disagreeing manuscripts were destroyed. That violent hands were laid hold of the text a comparison of the Hebrew and Septuagint will show. The early Christian apologists accused the Rabbis of suppressing texts that gave Christianity a ground for argument. When once the Hebrew text was settled it was faithfully transmitted even to misspelled words.

Of the education of this last period we get a view from the Talmud which gives us the following interesting facts: a school could not contain over twenty-five pupils for each teacher; over twenty-five pupils there must be an assistant; and over forty pupils there must be two teachers.

The following course of study is outlined:

1. From six to ten years, the Pentateuch or Law.
2. From ten to fifteen years, The Mishna or paraphrase of the Law.
3. From fifteen to eighteen years, the Gemara or Commentary on the Mishna.

In the primary schools study was carried on by audible repetition so the school was a babel of voices. Repetition was the keynote of education—so much so that the verb *shānāh*, "to repeat" came to mean "to learn" and "to teach."

Through all the succeeding centuries Jewish education has not departed materially from the Talmudic system.

Hastily reviewing the periods passed over, they may be characterized as follows:

1. The *first period* is that of *home training* among a people hardly developed into a national life.

2. The *second period* is that of the *synagogue*. Here the unity of national life is recognized and an effort made to hold it.

3. The *third period* is that of *compulsory education*. The unity of national life is recognized as certain when each individual has been trained to contribute his share to that life.

4. The *fourth period* is that of *Judaism*, in which the ideals of education are realized and completed, and all sects are merged into one common life. This is the end toward which the effort of the earlier periods had been slowly evolving under the influence of environment.

Criticism of Jewish Education.

As a pedagogical work the Jewish Scriptures are unsurpassed except by the New Testament. The literature of other peoples contains many excellent chapters on moral subjects, but treat them in an abstract way. This is true of the Koran, but in the Old Testament the teaching is by means of concrete examples of virtue and heroism. True, the standard of morality is not always the highest and the hero is sometimes commended for things which in our days would send him to jail, but all must be read in the light of the times in which the story was written, and not in that of our advanced conception of things. And after all a man should be judged not by *what* he has done so much as by the *motive* of his actions. The need of the world is not for theories of morality so much as for efforts to live morality even be it on ever so low a plane.

The human heart has ever gone out to those who have found and lived the ideal life, and to the realization of this in its characters the value of the Old Testament is due.

No pedagogical precept is more firmly established than that one learns to make a thing much easier by following a pattern, or learns to do something by seeing that some one has done it before him. Whether we look for physical courage or moral character we find it to perfection in the Sacred Books of the Old Testament.

Jewish education had for its ideal the building of character and the fitting of the individual for the responsibilities of citizenship. Thus it realized the aim of all true educational effort. It strove to give to all alike the elements of knowledge and promised preferment to the scholar, whatever his origin.

There is a dark side, however, and which caused the emasculation of the Jewish mind. Education was unsystematic, narrow and selfish. Even though the study was graded (as above shown), it was not fitted to the child mind but the child mind to it. The confinement to their Sacred Literature was narrowing to the intellect. Much it contained was not true, in a strict sense, while many fields of profitable study were inade-

quately treated or absolutely ignored. The ignoring of the sciences and thought of other peoples cannot but eventually be a great misfortune to any nation. This narrowness developed into the idea that they were God's especially chosen people, for whom was the Law, while the Gentiles were not worthy of notice. Never in Jewish history has there been an effort to uplift the less fortunate people about them. Granting all this - the fact no less remains that through Judaism has come the fundamental principles of modern education.

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THE HIGH SCHOOL AS THE PEOPLE'S COLLEGE VERSUS THE FITTING SCHOOL.¹

By G. STANLEY HALL.

Education may fit the youth to live in the past, the present or the future; and systems may be distinguished according to the relative influence of each.

I. In the Renaissance, which was the golden dawn of secondary education, the past ruled. The literature and life of ancient Greece and Rome were revived. Sturm's goal was to so train his pupils that if they were suddenly transported to Rome or Athens, they would be at home in the language, history, customs. The vernacular was formed on the model of the ponderous Ciceronian sentence which set all the fashions in style. Latin was the language of the school and the playground and the schoolhouse. The games and the whole atmosphere harked back to antiquity. There was no contemporary literature, history, science, deemed worth while. The fashion and the earmark of culture was to write a style interlarded with classical quotation and allusions. Liberal education consisted in reviving the dead past, and the results were remarkable. The boys became young Greeks and Romans.

How have we fallen away? Years of the study of Latin and Greek do not accomplish what months did then. Methods and results alike are degenerate. The baby Latin and Greek taught in our high schools is but a sanctified relic, the ghost of a ghost; and we find to-day almost every degree of degeneration from the Golden Age of secondary classical training. This is confessed even by its representatives in the German *gymnasias*, where the old ideal is still best maintained in the modern world. An informed writer, C. F. Adams, says in substance, that this high school fetish no more revives antique culture than the soil is fertilized by the smell of the dung-cart driven over it; and complains that he has been incapacitated for his duties in modern life by the seductions of this phantom, and that his grandfather, the president of the United States, was injured by it, although, pathetic to relate, he always praised it. The German emperor, in his famous rescript in 1892, declared it a

¹ Read before the Association of American School Superintendents, Chicago, February 27, 1902.

shame to the modern youth to excel in Latin composition, and said that he would have no more *gymnasia* or professor *Hintzpeters*. Norway forbids Latin and Greek, and Sweden has almost banished it from the secondary schools. The well-known Frankfurt method substitutes three years modern languages for these, and finds at the end of five years pupils have more than made up in charm. Mr. Reddie at Abbotsholme, Lietz at Ilseburg, Demolins at l'école de Roches, have set back fires that are spreading in their respective countries. Booker Washington says the two chief desires of the colored youth during all the Reconstruction period were to hold office and study Latin, and that his life work for his race has been directed against these two evils.

I raise no question of the great value of these studies for those who go deeply into them. I acknowledge our inestimable debt to antiquity. I believe in humanistic culture, and in Latin and Greek, and would not raise the ghost of the classical question, but when I find that during the past ten years, in which our high school population has more than doubled, Latin has increased from 34% in 1890 to about 50% in 1900, while the proportion of those who go to college has decreased from 14% to 11%, I believe the educational waste and devastation, especially in view of the growing claims and growing neglect of modern subjects, are calamitous to the point of pathos.

Despite vigorous denials, I am convinced that the general complaint of imperfect command of the mother tongue by the high school youth is largely due to translation English, and I cite the report of the Harvard entrance committee which challenges comparison for slovenliness and mutilation of good English style; and yet it is just at this stage, before the power to read without translating is required, that a recent writer says the chief benefit for the vernacular is required. Most of the high school Latinists do not go on to college. Beginnings that leave abandoned tracks in the brain because there is no relation to after life are evil. Moreover, it is a purely formal discipline with almost no content as now taught. Its practical relations to life, arts, literature, which are so magnified, are of the slightest. 34% of those who drop out of the high school do so from loss of interest and disenchantment, and this is mainly with the classics.

What keeps these studies alive? First, their traditional respectability. The high school was the Latin school, and children and parents feel they have launched on a higher stage in development when they are known to be students of Latin and perhaps algebra, not much better; especially is this true of Catholics. Moreover, Latin is often required in the first high

school year, and still more often strongly advised. Again, it is probably the easiest and cheapest of all subjects to teach. I would undertake to hire a hundred female Latin teachers at shorter notice and for less cost than in any other topic. Again, college requirements and possibilities are an enormous bribe, and our secondary education is losing its independence by this excessive interference and dominance from above; and, finally, one can teach Latin and break in the youthful mind with more authority and ease than in any other topic. The voice of its defenders is either hoarse or thin and piping with age. They are the rear-guard in the retreat of what was once a great army; but the grasp of this dead hand from the tombs of culture must be relaxed. When the public high school really fulfills the purpose and needs of those who pay for their support and really represent the greatest needs of the pupils, who attend, the Greek and Latin, will not perhaps vanish, but, in language the force of which amply excuses its bad form, will go away back and lie down.

II. How different when we turn from the too exclusive dominance of the past which has its stronghold in that most conservative of all institutions, perhaps the church not excepted, the old endowed college, to the training that fits for modern life in the present. Happily there is always, and now rapidly growing, a tendency in every modern race and nation to make its schools in its own image, and to measure their efficiency by how well they fit for the domestic, social, political, industrial present. It is the burden of the German Kaiser's complaint that the schools do not give him good soldiers, well-trained civil servants, competent administrators, intelligent and patriotic citizens. The ministry and still more the law show progressive inadequacy to the demands laid upon them. Mr. Kidd would test schools by the maximal social efficiency. Our own Dr. Harris measures them by the thoroughness with which they prepare for the life of State, church, school and home. We often imagine the enormous stimulus which would follow if educational requirements were as thoroughly enforced here for our 120,000 office holders as they are in Germany, where, to fill the lowest, one must have attained a certain State schooling, and each higher stage up through secondary and university grades opens the possibility of higher and higher government appointments. Business and trades have their requirements.

To interpret fitting for life to mean fitting for the best service in existing institutions in the present, although immeasurably better than fitting for the past, brings along with all its inspiration growing danger of narrowness. It is a Roman postulate dear to organizers and to those who love to impart that

prepared knowledge which the mature intellect selects as most useful. It tends to utilitarianism and is illiberal, whether one is fitting for a trade or for college. Standards are external and the question is—will it pay, whether in money or in passing examinations? Those who thus conceive education place the social organism first and subordinate the individual to his place in it. Citizenship bulks large compared with manhood and womanhood. Their philosophy of education, if they have one, is clear and convenient. Napoleon organized French education precisely on this plan that it might give him good officials and devoted citizens. Three-fourths of the students of the lycées look forward to snug little berths, and those that fail, after weary years of eating their hearts out, turn to independent careers from necessity as a last resort. An office, with badge, uniform, and permanence, is the French parent's ideal. The hopelessness of reforms in secondary education here is due to the excessive surveillance of the school to the needs of the social and political community. The French boy's spur to graduate early is that he may get in the line of promotion in office, which is always by seniority. Families have to be small, because every addition diminishes each child's share of the parent's property, and no girl and few boys can marry without a dowry. The French school boy thus foresees everything in his career at the start save only the date of his death, unless he fails of appointment and remains a candidate for starvation. In China the evils of this system are more fully developed. Demolins well says, "that system of education which attempts to adapt the young to existing institutions is bad and must fail." It tends to make young graduates tuft-hunters and place seekers, hoping to secure by influence soft berths instead of launching forth and carving out a career for themselves. They are always fitting for something, accumulating learning for the highest market, and the aroma of the trade school penetrates academic halls and causes premature, undue specialization.

III. But happily there is a third muse, the inspirations of which are now more and more felt, which teaches that the school should be the bud and nursery of the world that is to be; that is not made in the image of the past or the present, but that fits man for *the next stage of development in the race and nation*. In the present age of rapid transition and expansion of our race, the future and the ideal must be more dominant than ever before or we are dwarfed as a nation. This is a good age to be young in. It is the psychologic moment for new pedagogic aims, topics and methods, when the pulses of the old are quickened as with a *new adolescence*. Our children must not be trained merely to defend the old fortresses of civilization, but to carry

on offensive and defensive warfare in fields as yet unexplored. We must not only augment present, but projected efficiency. Although the method of fitting for the future is to overflow the needs of the present, just as outgrowing our old soul is the best way to get a new one in an age of moving equilibrium, we must remember that very much that we praise is deciduous; that the present is not a finality; is a germ and not a blossom, and still less a fruit; and that unless we are to be jingoes and chauvinists, after knowing the spirit of the age, we must quite as often oppose as serve it. The best things have not *happened yet*, and man is the tadpole of what he is to be. Youth is prophecy, for which its ideals are proverbially the best material. The battles of nations are sometimes psychologically won decades before on the school playgrounds. As Oxford feels and thinks, runs the old slogan, England thirty years later will act, for it is here that her history is pre-formed. Otherwise we turn out graduates like the man born just too late, who spent his after life trying to make up for the last quarter of an hour. Thus we teachers must always and especially to-day be dual personalities; on the one hand held to our primary organism and careful that no good in the past be lost, but on the other, smitten with a divine discontent with the present and its works and ways, trying to make our own lives more honest and exemplary and more hopeful and worth living because we give life to others, and worshipping the god of the present, but as an *ex* or *emeritus* deity when the god of the future shows his face.

What will the high school as the people's college be and do? I answer, if you will pardon summary phrases for the sake of brevity, first, it will teach *English* with the chief stress not upon language or form, but content, literature, history and science. It will not exclude the Bible, man's chief text-book in psychology, human nature, self knowledge, self reverence and self control; its prophecies the best school of the future; its appeal to faith as the substance of things hoped for; its poetry of nature, of morals, æsthetics, and of the true piety of the heart out of which are the issues of life; that follows the order of the soul's unfoldment through boyhood, adolescence, maturity and old age, for which one American university already gives credits on admission.

Secondly, the people's college will teach *oratory*. I have found fourteen widely used books on rhetoric which dilate on punctuation, paragraphing, the subtleties of style and good use, proof reading, correct and incorrect use of idioms, theories of poetic structure, narration, description, letter writing, and above all composition, which A. S. Hill's rhetoric says is the "main business of the teacher of English." Rhetoric is defined as "proper words in proper places," and the teacher must be

"all the time on the watch for errors," although not one student in ten thousand has anything to say; and rhetoric, it is said, does "not teach or imply thinking clearly." Now, the very word rhetoric means oratory. To Aristotle it meant giving truth the superiority which belongs to it by its nature. It means the art of influencing conduct with the truth set home by the living man. Rome knew no other education, and only in her decadence did rhetoric of our type arise, with its trifling artificial, sophistical way. Some of this, the English of the people's college should restore.

Third, the *drama* at its best is an incomparable school of life. The characters stand out clear and distinct; both they and the action is far easier to comprehend than in life where all is more complex. Dramatic reading suits youth, and very much can be done in a single high school year, even without a school theatre, if we would only abandon our senseless worship of notes. I visited a high school class which had spent some weeks on Othello, not one of whom yet knew how the story ended. The good drama is moral, because it rewards the good and punishes the villains. The lid of conventionality is taken off human nature, which is seen in its pure types, and a wholesome catharsis against evil is applied. There is always conflict, collision and passion, which suits youth and makes the theatre often truer than history, teaching the power that makes for righteousness. The decay of the modern theatre from its high ideal is hardest on youth.

Another content study in English work should be the great *medieval epics*. Quintilian said that such "contribute more to the unfoldment of students than all the treatises that all the rhetoricians ever wrote." High school boys have passed the age of chief interest in Homer's content, but it is the age of King Arthur, the Sangreal, Parsifal, Sir Galahad, Siegfried, and Lohengrin. This is the quarry where Chaucer, Shakespeare, Scott, Tennyson, Wagner, Ibsen, and scores of artists have found their inspiration. The theme of it all is chivalry and honor—the noblest thing in feudalism. It means reverence for womanhood, pity, valor, loyalty, courtesy, munificence, justice, obedience and heroism. Here grew the ideals of the gentleman, who was tender, generous, and helpful as well as brave. Morals and æsthetics have never been blended in a way which better fits the nature and needs of youth.

Thus the purpose of literature in the high school is supremely ethical, and the talk of art for art's sake here is degeneration. The receptive faculties are indefinitely ahead of the creative, hence to read and above all to hear, should take great precedence over composition, which comes hard and late, unless we wish to teach youth fluency with nothing that burns for speech

or is worth saying. Was this the ideal training of the speakers whose words are recorded in the thirty-one tons of printed debates that now are said to encumber the basement of the Massachusetts State House?

Next to English in the people's college should come science, which teaches love and knowledge of nature—the great mother of us all, and from which religion, art, and literature, as well as science have sprung. The sciences and topics chosen should be those that give largeness of view rather than precocious accuracy, and we should remember that man was a naturalist long before the laboratory. Youthful curiosity always strangely gravitates to frontier questions, where we are all children, and loves to play with great ideas—force, atoms, vast astronomic space, and geological time; is curious about remote lands, primitive people, strange animals and plants; the origins of things and perhaps their end and destiny. The high school has laid too great and early emphasis upon physics, which in the last few years, owing to college forcing and bad methods as I have elsewhere pointed out, has declined. First, high school science should always include the elements of *astronomy*. Natural curiosity about the heavens is now almost at its strongest and best, and the result is reverence, for “the undevout astronomer is mad.” Very little celestial mathematics is needed, that came late; little calculation of eclipses or tides or minute work with noon marks, but a meaty body of facts about nebulae; the number of stars; the distances of those that are most remote; their motions in systems very different from our own; collisions, comets, the dead planets; the sun and moon than which Plato and Aristotle knew no higher gods; the herology of astronomy which has had its saints and martyrs; its epochs, its culture history and astrology; and what the great astronomers are now doing.

Again *geology* should have a place. It takes children out of door; interests them in landscape; teaches them to understand it; glaciers and the ice age; the dynamic side of air, water, heat and life from the paleozoic age down; a little structural geology with the composition of rocks, ripple marks, beaches and shores; the history of the globe from its origin; something of cartography; with knowledge as well as love of the face of nature; large views of time and how the ascending orders of plants and animals arose. This is far harder to teach than chemistry and physics, and the nose cannot be held to the grindstone so steadily and securely. It requires a larger body of information and more real teaching.

Biology should certainly have a place. Not necessarily the technique of histology or the microscope; less about the cell; and more about natural history than nomenclature or classifi-

cation. The fertilizations of plants by insects and flowers opens a great opportunity for the skillful teacher to instill great moral lessons at an age when they are most needed, and with most unconsciousness. While migration, habitat, economic, and humane aspects; our knowledge of animal instinct; noxious and healthful plants, insects and animals; domestication; nests and homes; laws of growth in man and his general anatomy and physiology, should have place, with themes wisely chosen from anthropology.

These three are *real or substantial content* studies, while all language work and even mathematics are relatively formal. I would by no means exclude mathematics or modern languages, and especially *history*, on which much stress should be laid, but would give them perhaps a secondary and perhaps more elective place in a high school that is to be truly American.

The third group of topics in a secondary system that fits present nature and needs is distinctly *motor* or efferent, and involves the training of the muscles and the will, more or less inseparable at this age. I have no space here to describe how either the games or the manual training should be conducted in detail, but will only state its goal and ideal, which is efficiency. Here boys should be rated by what they can do. There must be the germs and educative extracts of just as many trades and industries as possible. On this practical side, no better ideal can be conceived than that of fitting young men for success in the newer and more unsettled parts of the country or in our new colonies. Horace Greeley's "Go West, young man," fits for life in a way almost ideal at adolescence. The younger sons of British nobility and the middle classes are beginning thus to be best trained. If we do not fit our youth for the geographical frontier, we should inspire them with the idea of beginning at the bottom, *so low they cannot sink lower, but where every change must be a rise*. They should take their places among younger and less trained men and trust to merit, with blood and iron enough in them to scorn sedentary ideals or the easiest way, and be, in Daudet's term, *struggle-for-lifeurs*. We must not forget that *agriculture, mining, farming, trade and commerce* are the basis of all national life and in a sense everything else is dependent on and parasitic to these. The mighty engine of business absorbs more and more of our best talent and requires ever greater energy, larger knowledge, breadth of view, and, especially, penetration into the future. It dominates statesmanship and the professions; its prizes are the greatest. Thus trained our youth will plunge into strenuous life of achievement and every man-Jack of them will want to bring his whole self to bear where he can compete and meet the verdict of his peers. If he is truly American, he

will want to begin at the bottom, *because he has a fundamental instinct of thoroughness* and fundamentality, and the wise parent will at the critical moment cut the navel string and toss the young out into the current of life to sink or swim. The Abbotsholme boys found their school a rubbish heap, overgrown with weeds, and took pleasure for years in cleaning it up. The man who means railroading will begin as a track-man; as a recent book says, will want to peasantize himself and fall in love with the soil, machine grease, coal or cattle. If he is city bred, he will plunge far into the country; and if a country larrikin, he will go into the city and strive to work to the top. If he is philanthropic, he will go into slum work and its squalor; if he is to teach, he will teach anywhere, anything and anybody; or if he is to be a professor, he will fill half-a-dozen chairs at once in a monohypic college, because he loves independence and the satisfaction of doing.

How is this attained? In answer, I point to Hampton and some of the half or three-fourths industrial schools for the nation's Indian wards. Nowhere does education work such changes and improvements in so brief a space of time, and it is all because these youth *touch life*. Here we must find our norm; this is part of the people's college which we must improve on if we can. Personally, I am sometimes proud that I know how to do every kind of old-fashioned farm work; that in my German student days I took lessons so that I can bind, gild and cover a book; make a broom and a shoe complete, do a little glass blowing, plumbing and gold beating. But my conceit is humbled when I see young men, often with darker skins than mine, who can also make harnesses and saddles; are good blacksmiths; can apply a bandage and do various kinds of rope splicing; are amateur wheelwrights, carpenters and coast-guards; can print and do onyx work; understand ice-making, tinning and electrical machines; are at home in the dairy, poultry yard and garden; know the rudiments of forestry, bee-keeping, drainage and photography;—*this is liberal motor education, and I bow to my masters*. Their motor arrears are better educated than mine. They are armed *cap-a-pie* and come down solidly on all fours, wherever life plants them. If they have not been through the high school, it has gone through them which is better. They love to do hard things because they are hard if any one does. They are not barnacled by a culture that must be removed before they can win out in the race of life. This is a part of the liberal education of the future. It gives character and makes men who will make our future social and political institutions in their own image and inspire them with their own soul.

This kind of people's college, with these three elements—

English, science, motor training, and others added *ad libitum*, will say to the conservative endowed college of the East which, as is the case with three in New England, still gives no credits whatever in entrance examinations for any degree of proficiency in any of these things save English alone,—here are our graduates; we have done for them the best we could to realize all the possibilities of their golden age. We have given them a taste, both of life and of learning; if our graduates can now do better with you than with us, you *must* take them. *We high schools will now organize by ourselves*; we know this stage of youth best; we will make our certificate and diploma system the best possible; and if our graduates are article to you upon our word of honor, that must suffice. We owe you a great debt for training our teachers and for stimulating us in the past. That debt we will now pay, but you must no longer prescribe our work or define our field any more than your own is prescribed by the professional school above. It may be a hard lesson at first as was yours to us, but it will be no less wholesome. Both in number and stimulus, your work will improve.

Finally, I am more and more persuaded that in its highest sense teaching ought to be a universal vocation. Guyau says that it should be the only education for women. I would add, and for men as well.

Statesmanship, religion, and science, all become precious according as they tend to the ever higher development of man. Education involves all other topics, and is that in which the education of all should culminate. The greatest of all reforms are educational reforms, and none others are complete without it. It is the best measure of progress, the best safeguard against relapse to the dark ages. The philosophy of education is the highest and only true and living philosophy. It is our chief *obligation to the future*. Its work consists in making an ideal environment for the development of the super-man that is to be, and while we must train the intellect, the will is far larger and the heart larger yet. Aristotle defined education as teaching men to fear aright; for Jesus it was to teach them to love aright, to fix the affections on the highest and wean them from the lowest. Some have conceived it as teaching men to be angry aright; not to fret at trifles, but to generate torrents of consuming wrath at great abuses, or to pity aright and shape the charity of the heart toward fit objects. In a single word, it is human evolution, and its goal is to so construct experience and knowledge as to advance growth. An age of growth like the present lays upon us new and larger opportunities and duties, and history waits to see if we can develop the wisdom and the vigor which our age demands. It wants not talk, but

deeds; not theories, but practical and in some respects radical reconstructions. If the best tendencies in our modern life really prevail there will sometime come a day when there will be no other serious fruitful thought truly worthy the best men that is not in a large sense about education.

WHAT IS RESEARCH IN A UNIVERSITY SENSE, AND HOW MAY IT BEST BE PROMOTED?¹

By G. STANLEY HALL.

This topic is of very great importance. Its decision very largely determines the nature and quality of true university work. It is a theme to which the Carnegie Fund will give great prominence, and perhaps it might be called central for the higher education which seeks to carry on offensive and defensive warfare in new fields instead of holding old forts and curricularizing second-hand knowledge. To have fully realized all that is involved in this question gives a new educational consciousness, and for a young man to have really grappled with the problem and wrought out ever so tiny a result is an experience of epoch making importance. In the student it tends to a new type of mind that is more independent and resourceful, and perhaps we might add American. Without it education is incomplete, and with it the young man feels that he can stand erect; is an authority and not an echo on some subject; minute though it be; and therefore ought to be more docile and respectful to experts in other fields.

No individual is large enough to treat this subject adequately, and he can at best only suggest, in view of his experience in his own department. Even were he able to formulate what is best in one, his norms would have to be modified for other departments.

All university men will doubtless agree that there is great abuse of the words research and investigation now, which are dragged down the academic grades even into the high school, where comparing a few references and doing over again work that has been done a thousand times—the teacher holding the key, a method which is wasteful and unnecessarily retards the pupil's advancement.

A candidate for the doctor's degree must get certain results in a certain time, and, therefore, can only very rarely attempt great heroic work with large risks and possibilities of indefinite delay. His voyages of discovery must be coasting voyages, and he cannot set out to find new continents. On the other

¹ Abstract of a paper presented at the Association of American Universities, of Chicago, February 26, 1902.

hand, the practice, still too prevalent in some places in Germany, of making the student a mere apprentice doing some trivial and highly specialized work to fit into the work of his professor, is liable to great abuses and loss to the student. It may be almost as bad, although in a very different way, as the public research in the school above referred to. An American student lately sued a professor in a German university because he claimed that the latter had taken his work as his own without acknowledgment, and the laws of intellectual property in this field still await formulation, although German traditions in my judgment are hard on the student.

It is there, too, that we find the opposite extreme. I know a professor who assigned a crude student a subject; planned and caused to be made expensive apparatus; sat by him an hour or more almost daily; found and even brought him references; reconstructed his tables; and in the end took them and wrote the article in German, the student's name only appearing but with a foot note stating in what university laboratory it was done.

Half the problem is to select a good topic. This may be less important in most fields than it is in psychology where interest as an expression of personality furnishes a motive power of very great value. Most men who desire to devote themselves to philosophic study come to university work with a high head pressure of curiosity and zest in certain directions. Their previous training has either sown or developed roots that can be grafted on to or utilized with great economy. Indeed, choice of topic sometimes is decisive for careers, and in a few rare cases I have had students who worked for months on subjects, good in themselves, whom I have advised to change for work along some very different line, and that with great gain. In my twenty years of experience I have learned to keep a book of problems, which is always at hand, where I set down such thoughts and references that occur. Some of my colleagues do the same, and we often confer about topics that seem and do not seem promising. Bibliographies are collected and often books bought, and occasionally apparatus and other data are collected in advance. We then have personal talks with each new man; find the direction of his tastes, reading, and plans; and then seek, as perhaps the most responsible of all our functions, to fit the man and the subject, not infrequently, however, approving a topic a man himself brings to us.

When this is done, the first thing expected of a student investigator is that he shall read and otherwise post himself on all that immediately bears upon his subject. He must know what has been done, neglect no important author; try to stand on the shoulders of others and not do over again what they

have done. He must criticise, evaluate, relate, and perhaps first of all make a concise digest of all the important work that precedes, whether or not it be later printed. The specialization, while not too narrow, must be acute enough to permit more or less mastery of the resources concerning it. This itself is often an important service. Here in my subject, the French theses are usually better than the German or American. This brings the young man to the frontier. When he has seen what has been done, he can form an idea of what remains to be done. It is a new experience for him to see the frontier of human knowledge anywhere, and is of itself an indispensable element in the higher education.

But mere scholarship is essentially selfish. Many minds that are noetic amass great acquisitions, perhaps to their saturation point, and regard themselves as educated because they know. Thus it is almost proverbial with many directors of research that graduates from certain colleges; where the training is of the best and not without some exceptions the valedictorian type of mind, here reach a limit which it is very hard to pass. The faculties have been in a pupillary state so long that they cannot get into independent action. They must have authorities, while those who know less are less impeded in the freedom of their mental action. It is very difficult to bring a merely learned man to doubt standard authorities or to proceed to demonstrate their errors, but the essential thing in a university thesis is that it must add some tiny contribution. It may be a very small brick to the great temple of human knowledge, but it must be an advance. It must penetrate a little into the vague horizon that separates the known from the unknown. This means an appeal to conative, active powers. I should be very far from over estimating the value of these contributions, but they should not be under estimated. They aggregate into a great and precious body of new knowledge. Of course it will occasionally happen that the young explorer's net comes in empty and the results of his protocol figure up contradictory conclusions, but even in this case he has distinctly smoothed a way for the next worker.

Perhaps we might divide the stages of university investigation into three. First, the *method* must be either invented or adapted to the problem. There are conditions to be controlled; principles of selection must be determined; negative instances rejected; very often machinery must be devised and made; ways of constructing curves must be discussed; graphic methods of record as well as presentation wrought out. Method, as was said of old, is like the roof overhead in tunneling a sand bank, it keeps off the débris and permits the work to go on beneath. Just as the apparatus for research will probably not

be found in the cabinet to illustrate stated courses of lectures, so the mechanism of treating the data will not be laid down in any logic or perhaps not completely found in any of the standard methods dealing with and distributing statistics. The method must not be too precise and accurate. Pedants of method often need to be reminded of Aristotle's remark, that precision should not be more exact than the nature of the subject admits of. I have noticed that some investigators reach their acme of satisfaction when their formulæ are made; their machinery works well and this mechanical and preparatory stage is complete; and it is true that this is often all conditioning, but it is essentially preliminary.

Second, there must be *data collected*; experiments made and noted; facts gathered; protocol books filled; instances and experiments multiplied; and the basis of induction made broad and deep. This is no less essential to safeguard against theorizing on insufficient premises. In some lines of work this is relatively easy, so that many minds here fall into doldrums. They mount sections, multiply slides and tabulate results for weeks and months in a mechanical way, deferring the careful scrutiny that should be incessant, and often thus waste effort by the instinct of the ant that gathers, neglecting to add the functions not only of the spider but of the bee that mixes its own secretions with what it gathers. The counters, weighers, measurers and tabulators in my experience are especially common among novices in experimental and inductive work. They are over superstitious about their new methods, feeling that they will grind out results of themselves. Often as the spring begins and the necessity for having finished the thesis looms up, it requires drastic methods to overcome this stagnation and arouse to the next stage of work, which is most difficult and important. There seems to be a perpetual delusion here that disguises the difficulties and time ahead. Some, alas, are competent only here. The professor makes the methods and helps them over the initial difficulties. In this second stage of amassing, they seem competent because the work is of a more routine nature, but they never can be brought to cross the real Rubicon of interpreting their results. True, such men perhaps should not be put to research, but the professor must make up his mind in every case that he may have to finish any student's work, and that possibly he has so little conception of what research means that he will never realize that he has done nothing but mechanically repeat tests in an imitative way.

The third and main stage is to *think it all out*; to apply a rigorous, philosophic method; to reason logically on the objective facts; to find their unity; to determine what is central

and what is unimportant; to relate and determine the place and bearings of all; and find whether the accumulations are mere agglomerations or have a meaning and a value for science. It is really this that tests the metal of men,—their acuteness of thought, their originality, their power of imagination and the construction of hypotheses, the readiness to catch implications and suggestions of all related facts in their ken;—this requires a well organized brain, and as it were knits its different elements together into a higher unity. Most of us professors fail here. How often we have the experience of finding that some one else has extracted great truths from facts perfectly familiar to us, because he had the seeing eye and the divining mind. It was said of Helmholtz that almost his every serious thought in his maturity added to the world's sum of knowledge. This is perhaps the highest compliment that could be paid a man of science, and from this standpoint how incompetent most of us are to conduct research as it should be, and how new the standards of measuring men should be, and how different the faculties here required from those which successfully lead or drive platoons of collegians through textbooks.

My theme is treated, I know, in a way wretchedly inadequate, but a few rather incidental remarks I must add. Young men are not overburdened with gratitude. They have been aided all their lives, and often when a professor has done most of the work, the student alludes to him in his thesis only with formal and perhaps scant recognition. This condition, I believe, is a fact of nature which we must accept. Our place is to serve, and if there is the least jealousy or envy of our students; nay more, there must be no reluctance to give them all our best ideas *without any reserve* or without the credit which should go with them; that we must do not only with entire, but with rejoicing self-abnegation. Wherever there is doubt as to the authorship of ideas, the student should have every benefit of it, provided only that it is always stated where and with whom his work was done. I have in mind several cases of young men who have written books a year or more after they left their professor, most of the best ideas of which have stood for years in his lecture notes with no acknowledgment; but the least symptom, objective or even subjective, of reclamation here, I believe ungenerous and opposed to the interests of the young, which we all must serve, and to the best interests of university work.

Having published a successful piece of research, a young man is almost a new creature. He is a citizen of a higher academic community, and has to set himself a higher standard to live up to. He must consider himself and be considered an

expert, however narrow the field, and entitled to an opinion which, whether in the learned society, the conference of manufacturers about processes, committee rooms of legislators, in the councils of physicians, entitles him to a hearing. He is thus a member of the *university invisible*, not made with hands, and not a guest or servant or an alien in it. He has a better idea of what intellectual freedom means and he has had some experience with real conviction, which the masses know not of.

Thus he must print and at once. This is not only a test of the institution that it may be known to others what the degree really means, but the baptism of printer's ink gives enhanced self respect. He has nailed up his theses and must defend them. These must also be freely exchanged and circulated, so that they can be available to all who wish them. They must be concise and not suffer from inflation or over dilution. Most young men need discipline in learning to talk with the rifle rather than with the shot gun or water hose. If there are any historical or other topics that require length, there should be means to that end. It is pathetic to hear representatives of wealthy institutions, which charge large fees and claim to do university work, pleading poverty when it comes to printing theses, and either refusing investigators in other institutions, who wish to see manuscript copies deposited in their libraries, or making them wait for each other to do so.

Research from its very nature cannot be very much organized or mechanized. All committees and rules and uniformity are here impertinent, if not injurious and impossible. The freedom of investigation blows where it listeth. It often needs financial resources, but should never be controlled from without. Indeed, I am not clear that it is entirely compatible with administrative perfection and I fear that the over organization, from which so many things suffer in this country, is bad for it. When a professor becomes the director of a great building; must keep it in order and look after accounts; and direct various attendants, he is almost certain to be weakened as an investigator. Victor Meyer would have all chemical laboratories built so cheaply that they could be renewed every ten years, that they might be plastic to the exigencies of research to their very boards, brick and mortar. Great librarians have been eminent in history or literature, but it is in spite rather than because of their vast knowledge and responsibility for books.

Finally, among the most important of all instrumentalities in research in at least one department, I believe to be the frequent, perhaps weekly, pooling of results by a choice body of men for each other's benefit. Let one or two men in a company of perhaps twenty read once a week what they have done

that each may know what all the others are engaged upon and have the full advantage of following all their work and processes, and it will be found that the discussions and criticism which follow will be of great fruitfulness for each investigator as well as for others. Sometimes new references, names or other sources of information are brought to light, but more frequently the subject is seasoned and pruned by criticism and very often fructified by new ideas in this process. The teacher, who has successfully tried this plan for a term of years, can truthfully say that, while he has learned much from his masters, he has learned more from his own students. Here, too, by the ear and mouth method and by conversation that sharpens the minds of friends, he may perhaps have found one of his greatest pleasures in life and have been stimulated to render his own greatest aid.

SOME SOCIAL ASPECTS OF EDUCATION.¹

By G. STANLEY HALL.

Man has domesticated himself by civilization because, like nearly all the other seven score species that have been tamed, he is by nature gregarious. He became a political animal, because long before he was a social being—a socius. Prolonged solitude tends toward imbecility, especially in the young. All the isolation cases, whether by accident or design, and the solitary cell teaches man's dependence upon man. The defects of the blind and the deaf are largely due to restriction in the surface of contact with their fellow beings.

In view of this, sociology—a new and as yet very crude science, but full of vast problems for the future—now insists that education is almost solely a social question, and all its work may be described as fitting for society and civic life. Its grave indictment against the school may be roughly and perhaps a little strongly characterized as follows:

1. It shuts the child up away from the home, nature and the street where he can truly live, and there enforces an artificial and sessile life, using few muscles save those that wag the tongue and now more and more the pen; inverting nature's order with insufficient air and perhaps light; condemning the eye to monotonous zigzag; and giving rise to booksful of school bred diseases.

2. The kindergarten, primary, grammar, high school, college, university, technical and professional grades are not well articulated, so that there is waste in passing from one to the other. Each type of institution is too independent of the others, and there are both gaps and overlappings.

3. Successive grades in the same institution are too isolated, one from the other. Promotion methods are clumsy and mechanical. Pupils lack association with older children which they had in the ungraded system, where the older were of great help to the younger.

4. The curriculum is isolated from life, sometimes dealing with ancient subject matter, useless in the modern world, and perpetuating old traditional methods long after they are super-

¹Address at the annual meeting of the Harvard Teacher's Union, March, 1902.

seded by the progress of business, science and letters, and being thus always belated by a greater or less interval.

5. Its persistent gravity is toward form instead of content, at least three-fourths of the instruction in the three r's being purely vacuous form; language tending to take precedence of meaning, method of substance, and mechanism of life.

6. The curriculum is prescribed with wooden uniformity. Under the system of close supervision, the teacher has no initiative to bring to bear his or her own personality, but is the inspector's assistant.

7. The science taught is bookish, abstract, memorized, and not applied to life.

8. The pupil is isolated even from his mates and not allowed to help them. The natural stimulus of emulation, which is such a power in the world, is checked.

9. The branches are isolated and neither correlated with each other nor co-ordinated with the nascent stages of the growing mind.

10. Lastly we isolate by eliminating from our educational system topics on which there is difference of opinion. Religion, the dearest thing and most central to many lives, the politics of questions of party issues: slavery, socialism, evolution, labor organizations and many more, and as these are true and often burning questions the school is devitalized. This results in some tendency to focus teaching on things the community cares nothing for.

If this extreme characterization were correct, the school would be a ghastly, artificial, desiccated thing indeed, made up of pretences and make-believes. It would distinctly disqualify for life and maim and handicap its victims. Children would not live in any true sense in school, because nothing would truly need to be done. They would be exotics away from their natural habitat and little effected by the personality of the teacher, even principals being more and more administrative officers withdrawn from the pupils, and the more they were fitted for school the more they would be unfitted for life. Exaggerated as this view is, there are always tendencies in education toward making school life a thing apart, peculiar and formal.

But, happily, there are countervailing and opposite tendencies always more or less active, and to roughly estimate and list some of these is my purpose to-day.

To begin with, language itself is in its nature and origin a purely social organism. It is primarily to express one's own ideas. The child should never be compelled to say anything unless he has something to say. Speech is never for its own sake, and should never be studied apart from content by the

young. For them the spoken should have constant precedence over written words. The habit of utterance without having something that presses for expression undermines the foundations of honesty between man and man, and loosens the social bond. Better yea and nay than the verbal inflation and verbiage with which we seek to endow those who have nothing to say, and whose mental vacuity if left undisguised might be a wholesome spur. Language does its social function best in free conversation between pupils and teacher, provided, only, the topics and methods are well chosen and the teacher's mind is full to overflowing. Nothing so sharpens the mind and quickens thought as seeking and finding facts and truths in common. Wherever children speak and especially write without a very real and urgent content, they are demoralized and their education is anti-social.

Again, young children are imitative to a degree that neither they nor teachers have until lately dreamed of. Some extreme psychologists now hold that everything, even origination and invention, is a product of imitation. It works unconsciously and almost hypnotically. A late writer collected a list of scores of fads that spread through a class, school and the youthful community. This apish faculty pitches upon accent, gait, manner, dress, mode of speech, all the automatisms, habits and morale, like infection, and is often most potent without a word of instruction or knowledge. Fashions, beliefs and conduct are conveyed by contagion. The teacher, the older and especially admired pupils, and natural leaders can be utilized as radiators of moral and social influence in innumerable ways by a tactful teacher; and if he or she be a favorite, there is almost nothing about his or her own personality which is not thus infectious. The same to some extent is true of the influence of heroes in history and typical characters in literature. Great and golden deeds often seem best taught with no moral or obligation, because the child's intuitions are deeper and stronger than its consciousness. Every teacher who would be instructed in this theme now has happily at his disposal a most suggestive, compact and new body of psychological literature.

The school itself should inspire *esprit du corps*. Nothing is stronger, especially in boys, than the gang spirit which in the early teens underlies all their spontaneous organizations, predatory, athletic and even cultural. All scope should be given every harmless expression of this instinct. The young are teaching others social morality thus far faster than the school can do. This very spirit, a little enlarged and matured, has often become love and pride of the school as such, and expresses itself in decoration of the room, improvement of the grounds, and even care of the building. Inter-school competi-

tions and victories widen the social purview. At Abbotsholme generations of students have made many acres of rubbish, dumping and underbrush blossom like a garden; have trained other acres for playgrounds; erected band stands, sheds and seats for games, built bird and animal houses; and made the school the center of veritable home instincts.

Again, self government is no longer in the experimental stage, but has been demonstrated in many a sphere of school life and conduct. Not only order in the school-room, attendance, excuses, points of honor, dress, regimen, etc., have been safely left to pupils who have thus been trained to responsibility, but in boarding schools we have many an example of purely spontaneous and elaborate social organization of the tribe and clan spirit and stage, recapitulating human evolution and instituting and defining property rights, with courts and penalties, reforming abuses, developing little industries, systems of exchange and trade, and even devising currency. (See, *e. g.*, Johnson's Rudimentary Society, Sheldon's Student Life, The George Junior Republic, my Story of a Sandpile, etc.).

Again, the isolation between the home and the school can be ameliorated, and here we have many scattered experiments which need to be carefully collected that we may profit by successful experiments. The school should be made in the image of the home, should be the home projected and enlarged just as the teaching instinct at its best is at bottom identical with the parental. Probably only in the lower classes are the children really overburdened by home duties, and in the community as a whole they should do far more, and it is difficult to say whether home or school would be most helped by closer rapport with the other. In this country we have in several places successful mother's meetings—perhaps fortnightly at the close of the school session in the building. Here school lunches, cooking, economic marketing, the home life, mending, and questions of discipline and reading have been discussed with great profit. Even ignorant mothers have been attracted and even provoked to talk when the topics touched closely upon their own life and that of their children. Fathers' meetings, since the old day of the district school and the semi-annual or quarterly meetings, are less known. But we have many associations of parents who listen to lectures or hold discussions on the school tax or vote, on school buildings and sites, hygiene, curriculum, etc. In some German cities, there are local committees of perhaps several score of representative parents, who are organized and take active interest in the local and external questions of education. Although this work is one of supererogation on the part of teachers, already overburdened, its results are always spoken of with enthusiasm.

There are many forms of such special co-operation between home and school from that of Detroit to that of Brookline.

The home should be served by every child, who should feel himself a useful and integral member of it with duties. Every girl should cook, sew, clean, polish, and perhaps wash; have something to do with flowers; develop some domestic taste and pride in place of the shame so often felt by high school girls for their lowly home, for which their education so often breeds calamitous distaste. They should be reminded that too soft hands in the young suggest a soft brain; that hand and brain both grow and are educated together. The kitchen is the heart of the home; its industries, intelligently understood, are among the most educational of all possible influences; and to overcome the alienation school often breeds for home life in the modern American girl, is one of our most serious problems.

Boys, too, should have chores with coal, wood, fire, the yard, snow, errands to market, repairs, pets, and especially in vacation should be taken up into the industrial or social life. While cleanliness is a virtue, never over praised, to get dirty is often a duty, the recovery of which gives a new access of self respect. We teach the domestic life of the ancient Greeks and Romans and perhaps our Saxon forefathers, but neglect our own. The struggle of middle class parents to exempt their children from home work is often pathetic. They study Sloyd which was originally nothing but the curricularization of the home industries of Swedish peasants; study attenuated and isolated manual and industrial methods of training which are only the home duties of children of some other age or place. We teach the Indian to make butter, harnesses, carpentry, and blacksmithing despite the fact that a better curriculum for him could be devised in making bows and arrows, pottery, bead and basket work, canoes, moccasins, and other indigenous arts, which are being lost. The home is the mother of the school which has almost disowned it. They are often rivals, while the whole duty of the true teacher is only to perform certain special, parental functions.

Again, play mirrors and epitomizes life. The play world reproduces in rudimentary form the serious business of both primitive and modern man. The doll is far less often a baby than an adult reduced to the dimensions of the child's ideas. On the Groos theory play is practice of what children will do when they are grownups, and on what I believe a larger and truer theory, it especially supplements and complements future life by exercising faculties that will become useless, but must be exercised like the tadpole's tail if they are to vanish and stimulate the growth of higher powers that take their place. The child is whole only when he plays, and most plays are a

fore-school for the social instincts. The rules of the game teach forbearance, justice, respect for others, and most of the social virtues. Thus a curriculum of plays and games can develop almost every good quality, and whenever it can be turned on in the school-room brings into it the breezy, real life of out of doors. Hence playgrounds filled full of every practical utilization should be integral part of every school. Sheds for rainy weather, gymnasium apparatus, toys for little children, and the instruments and incentives of as many organized sports as possible should be inseparable from every school. Thus children educate themselves and each other, and the yard is a school of human nature. The ideal school will always be in the country. The leaders of English history developed their best qualities proverbially on the playgrounds of Eton, Harrow, Rugby and the rest. There should be time and if possible supervision, and alas! even incentive is sometimes necessary.

Nature study has social utilizations in individual plots for plants and flowers, in bee keeping, elementary nurseries and forestry, census of birds and their nests, insects and their economic and biological aspects. The toad, frog, spider, ant, mouse, as well as fruits, are fraught with lessons and centers of interest for all agricultural life. Even pests teach their social lessons. Dr. Hodge's work is, I believe, to be of great and sudden usefulness not only in the knowledge of nature, but of society. In a country town a few summers since, I gathered about thirty young teachers with specialists;—one who taught them the flora of the region; another its fauna; another its geology—soils and minerals; another local history; another the stars; another the old industries—spinning, weaving, dyeing, palm leaf hat making, something of tannery and other of the more than three score indigenous industries fifty years ago. But the sad thing was that hardly a teacher in the district schools or even the academy knew anything of the natural environment. The children were taught the almost purely formal three r's and the usual Latin, algebra, ancient history, with hardly a single point of contact with the world and its occupations in which most of them were to spend their lives. They knew something of the battles and the presidents, but nothing of their own town meeting—the germ of our institutions, nor of the ways in which their grandparents lived. So far we have sought in vain for a teacher within our means who could tell them about what was nearest to them, while scores of Latinists, algebraists and philologists were on the list of applicants. Was what they were getting, education? Did it help or positively hinder them in their life work?

Some civic instruction before the close of the grammar school should be universal. This, some have begun by grafting on

to boys an interest in fires and explaining insurance and teaching heroism from the brave deeds of the fire laddies. Others have utilized spontaneous and already well developed interest in the police for lessons on crime, drunkenness, the function of the prison, penalties for various offences, and duty in general, and have spun a little system of practical ethics about this very vital center. The school itself is a convenient point of departure for the study of taxation, organization, the duties of school boards, the processes and material of building, and have evolved lessons of hygiene, punctuality, order and the other school duties of children which may themselves be lessons in sociology. All children are interested in the blind, the deaf, criminals, idiots and perhaps the insane. These themes have been wrought up into wholesome lessons on charities, and in some places visits are made to some of these institutions, and the sympathies of the children thereby widened and their appreciation of the great function of human benevolence deepened and increased. Elections afford opportunities for instruction in suffrage, its technique, functions, history, and the advantages of democratic and republican forms of government. Sometimes groups of children are taken to the city hall by appointment, or itineraries to the public institutions are devised which leave indelible lessons.

Industries are a vast theme. In a material sense agriculture, manufacture and commerce are the central things in the prosperity of a nation or race to which everything else—the professions, literature, etc., are subordinated and ancillary. What we call business is a vast, booming, humming machine has its own laws only partly determinable by the will of man and which economic science has not yet compassed. It is the great modern school of life, for the sake of which we legislate; the moralist and preacher try to keep it pure and honest, the lawyer is the watchdog of its methods; national expansion, migration and immigration are often in its interests, and all its institutions flourish or decline with its welfare. Wherever we can turn on its interests to the school machinery, it is given vast increase of motive power. The teacher's great opportunity to-day is to select the most educative elements and curricularize them in order to develop the motor, efferent power that do, make and produce.

Now industry is more and more specialized, and as differentiation is proportionate to intergration, knowledge of any form of it requires much knowledge of others as well as of exchange, trade and commerce. In the schools that really represent the people a great future opens here in giving to our industrial and manual training a far larger scope, better methods, more unity. True education is mainly by activity,

and doing is psycho-physiologically far higher than mere knowing. I have often expressed some personal pride, if not conceit, that I was taught and am still able to chop, hoe, do everything about the dairy, and most other old-fashioned farm work, have several recent summers personally put in good drains and ditches, washed and sheared sheep, harvested, can make maple-sugar, lye, soap, and that I took lessons years ago in Germany in book-binding, shoe-making, soldering, glass-blowing, and gold-beating. But my conceit is humbled when I see what we are teaching our negroes and Indians in gardening, blacksmithing, the care of cattle, harness and saddle-making, carpentering and wheelwrighting, forestry, drainage, bridge and road making, milling, running electric machines, tinning, ice-making, onyx-work, running engines, painting and printing, cooking, laundry and housework, I bow low with humility to my superiors. These men and women, often of darker hue, are getting the quintessence of the organized experience of the race faster and better than I or my children. Indeed, for actual progress up the scale of improvement I know no institution that can show anything to compare with the growth year by year of men and women in the Hampton, Carlisle, Phoenix, and other of our best industrial schools that teach knowing by doing. Those whom they turn out are real struggle-for-lifeurs in Daudet's phrase. They can succeed anywhere. Wherever Fate throws them, they come down on all fours armed *cap-a-pie*. Their spirit is the best. Instead of seeking soft easy births, they wish to go to the frontier, the colonies, or down to the slums, and begin with those far less equipped, so low that every possible change must be a rise. Their muscles, their will, their courage, may be held up to our high school and college graduates as models for imitation. The rich child is necessarily isolated from the world in many ways which the poor child knows not of, and knows far better how the half that is other to him lives. These are not trade schools, but liberal schools of motor education. The catalogue of one says doing and knowing are Siamese twins with equal hours. Another gives but two hours a day to study because it assumes that the hand will educate the brain more surely than the brain the hand. But both recognize that neither linguistic work nor memory so develop neurons in the brain or are so near to it physiologically as the hand, and that where this is neglected, man flouts the great advantage that came to him with the upright position which freed it from the necessities of locomotion for the uses of the mind. Industry is inseparable from geography and direct incentive to it, for all that is grown or made must find a market. It is interested in prices and all other factors and changes. The laws that regulate exports, tariffs,

and indeed the whole financial and industrial organism is opened by that most potent of keys,—practical interest.

Very interesting and suggestive is the special solution of the social question attempted by Professor Dewey's school where the children recapitulate the industrial history of man by cooking, spinning, weaving, dyeing, drawing, and so forth. Of course, reproducing ancient stages of man's development takes the child into a simpler world which must, however, be largely constructed by imagination which is so vivid in the young. Of course, too, the child repeats the history of the race even in his bodily and mental development, but progress is always shortening and even eliminating the earlier stages, and we have yet, so far as I can see, no norm by which to determine what stages should be shortened or prolonged and intensified, or where the dangers of arrest in the early stages are surest avoided and all the advantages of repetition secured. Life is too short to reproduce all the past, while the present, too, has more problems than any individual can master; so while I visit and study every syllable concerning this most fascinating experiment, my own judgment is still suspended. One thing is sure, however, even if it be all proven wrong, that of itself is a precious demonstration, but the school is in an experimental stage, and its final solutions all will perhaps unhesitatingly applaud. My chief scruple is whether or not the receptive powers of children get that relative predominance which the very nature of childhood requires, for active as it is, its observing, listening, afferent faculties are still greater.

Many a consensus has lately been made of what children plan to do and be in the world. Their choice of vocation undergoes continuous and quite regular evolution. With boys the hunter, trapper stage passes to that of the policeman, soldier, father's vocation, that of the most eminent man in town; the girls so many of whom would be milliners at thirteen, and clerks, stenographers, and so forth at fifteen in regular order. Some account should be taken of these vocational ideals and preferences in their season, for a period of predominating interest in anything can be grieved or sinned away like the Holy Spirit, and the results are always wasteful if not tragic.

Most of what I have thus far said applies to pre-adolescent stages or at the latest to the grammar school period. How different our problem when this great transformation comes. Its changes are mainly sacred to individuality, to the development of which and not to the adjustment to any existing institutions the whole endeavor of the teacher should be addressed. If the grammar schools ought predominately to fit for existing institutions the high school and college should be made in the image not of the present but of the future. These are nests of

institutions that are to be. Personality must now be unfolded to its uttermost with the assurance that State, industry, family, church, will be transformed and made to fit it and not *vice versa*. Now nature gives rather suddenly in our day and race a great augmentation of the self which takes its control into its own hands. Not authority, but persuasion, influence, interest now rule. All the adult world to which children are relatively indifferent is felt as never before. The school is the embryo of future society which we cannot forecast, and to merely train for the present is to dwarf talent and originality. The social instinct is now trained by friendships which can never be deep and lasting before. Spontaneous and relatively permanent organizations for amusement and culture are formed. It is the age of religious involution or duty to self, parents, mates, the world is realized. Sentiment is deepened. Art and music find new appreciation. Competition flames up with new intensity. Self-consciousness often seeks to reconstruct manners and is seen in countless affectations. Every serious boy in the teens is tense with the desire to know how he is to rank in the world, whether as inferior or superior to others. He desires to do, be and make of himself the most possible. If there are special aptitudes they appear now. At this stage youth must not be trained to merely defend the old forts, institutional or cultural, but to advance to new fields armed with all the arts of aggressive warfare both offensive and defensive. Thus to feed the new centers of all-sided interest should be our end, and the wise teacher will follow and serve more often than lead or command. All the social instincts are now immensely reinforced. The queries, too often unspoken, are numberless, the hunger for real knowledge, for content is at its strongest and best, and if we believe that man is greater than his institutions, we shall focus our endeavors upon satisfying the strongest curiosities. Too soon this golden spring-time of growth will be past and the life of service begun. At the best individuation which culminates now will be checked by genesis, so that the best social education now is to develop the fullest possible maturity of the individual in as many directions as possible.

Feeding the soul now means a great abundance of information with which the whole atmosphere should be charged. Perhaps the best distinctly social training is that which delicately centers on motherhood and its duties for girls and fatherhood for boys. This makes for control and the true altruism which now first takes deep hold of the soul. Moral and physical regimen, the control of passion is the one chief duty of this stage, and if well performed nature will do most of the rest till we learn better what to do. Religion, ethics, science, and even art are largely valuable just as they serve this end. It is

where this fails that we have apathy and selfishness. The hypertrophied egos which can no longer enjoy. Even mere scholarship that knows and does no special service to learning is selfish, anti-social. Mere acquisition of any kind should be no longer the goal.

Finally, true social education will revise some most established usages. It will insist in its higher academic grades upon a good deal of technical and applied science before the expert consecrates himself to pure science. It will insist on considerable knowledge of sociology, experience in slumming and rescue work before life is devoted to the pastoral office. It will demand more historical perspective for the pursuit of law and medicine and for the specialist in any branch that the expert may know the collective toil and labor which produced the fruits he enjoys. It will require more knowledge of the general laws of life and of health before training in the cure of disease; and, in general, we shall restore in our academic life the spirit as well as the great old name of the humanities. In this day of great national expansion, when the limits of the world are mostly known, co-operation will slowly gain upon competition, and sympathy rather than antagonism will be the method of the gentleman and the scholar.

· ADOLESCENTS AND HIGH SCHOOL ENGLISH, LATIN, AND ALGEBRA.¹

By G. STANLEY HALL.

The remarkable advances made within the last decade or two in our knowledge of adolescence are marking an epoch and are destined to radically modify our ideas of secondary and, to some extent, higher education, and in the near future to revolutionize some of the tendencies now dominant. The teens are the age of acquisition of the later and more precious stages of human development, because in them man is more radically differentiated from animals. It is precisely these, unfortunately, that may be most easily aborted in their nascent periods by a little overwork, worry, exposure, deficient food, and other causes which would not affect the earlier stages of growth. Before this period children need much drill, habituation, authority, and memory work; but as adolescence slowly supervenes and boyhood is molted, the method of freedom and appeal to interest and spontaneity should be increased. Now the best things are springing up in the human soul. If there is any genius or talent, enthusiasm for work or for ideals, they begin now to be felt. It is spring in the soul. If the race is ever to advance, it will not be by increasing average longevity or directly by enriching the last stages of life, but by prolonging this period of development so that youth shall not die out and its zest and enthusiasm grow pale.

This brings me to the single point in this wide field of which I would speak to-day. There are two standpoints from which everything can be regarded—the logical and the genetic. One is the method of system, and the other that of evolution. One develops; the other organizes. One is more dominant in the biological and the other in the physical sciences and mathematics. One looks more at form; the other at content. In studying the soul one seeks to explore and schematize the adult mind; the other cross-sections this method and considers the psychic functions of animals, children, savages, and defectives as well. The man who is most developed himself, or in whom severe illness or conversion in a too drastic, literal sense has made some break with his past life, is most liable,

¹ Read before N. E. Asso. of College and High School Teachers.

without special studies, to forget that growth is the one and only test of values in the world of education in its largest sense, and that even church, home, and State, as well as school, are to be ultimately measured only by their making an environment in which man can attain an ever higher and more complete maturity. The great organizers in education, therefore, are constitutionally in danger of distrusting youth and their endeavors to be one-sidedly scholastic; while those whose watchword is development, and who believe in nature and seek first of all to have the warrant of her great push upward behind them are paidocentric, and hold that everything in the school—buildings, topics, and methods—were made for youth, and not *vice versa*. Logic has no place for interest, and deems it, if not merely a convenient expedient, something not essential and organic; perhaps dispraises information topics or subjects, or thinks all alike educational. The latter regards knowledge not as an end, but as a means to larger living; would conserve the child in the man; holds that studies in which there is no pleasure can have only limited profit; and appeals for its sanctions to the biographies of the great leaders in the world of learning. The logical standpoint persists in the methods of drill and training proper for childhood and the stage of apprenticeship to authority; wishes to cultivate exactness and accuracy before its time; and has had much to do with the sad fact that the American high school, despite the rare opportunity that has come to it above all European systems, that its beginning marks the dawn of this critical age, has remained more oblivious and unresponsive to its nature and needs than perhaps any other institution ever devised for it. We teach Latin, but ignore the fact that in ancient Rome all educational lines converge to the youth of seventeen and diverged from him. Our Greek scholars have not profited from the fact that no race ever knew youth so well, loved and idealized it so strongly, and kept their own life and history the best illustration of the eternally youthful in art, letters, and institutions. We teach the history of education and pedagogy, but forget the fact that it began at this period, when nature almost reduces the psychic life back to infancy and then widens upward toward the university and downward toward the kindergarten, in almost exact proportion, as civilization advances. We place perhaps the most trying of examinations, of a kind that cultivate the memory pouches, just at that age when teaching should be suggestive, so as to sink deep, as if trying to cultivate the power of rumination instead of the ulterior processes of assimilation. We make too small appeal to the imagination at the age when every youth should be an idealist, if his soul is not made sterile, and incessantly analyze to secure

so-called formal discipline, just as Aristotle says the mind totalizes, wants the largest wholes and greatest principles, forgetting that mental, like dynamic energy, must be developed over a large surface in order to be applied at a small one, and that the prime thing at this stage is to train character, to awaken, to graft interests, to give range and loftiness of sentiment and of view, and that the Greek teacher of youth chose to be called an inspirer.

From the genetic standpoint, let us now briefly consider a few high school topics.

Physics, *e. g.*, was selected as one of the representative sciences, and has had the benefit of the best fostering care of colleges, both in the prominence it has had among entrance requirements and the rare care and ability with which its subject-matter has been wrought over in text-books and courses, so that everything that expert knowledge and the authority that works from above downward, reinforced by the advocates of unity, system, and enrichment could do for it has been done. Yet in the country at large, from the year 1893-4, following that of the publication of the Committee of Ten, when 25.29 per cent. of all the secondary students in public high schools in the country were studying it, it has steadily declined to 20.20 per cent. in 1898-9. Nearly half this number is girls. The relatively progressive neglect of physics in the high schools is also widespread among colleges, which President Eliot notes with sadness in his report, but does not explain. As this subject was selected as a typical science to lead the movement for introducing others, this result is especially deplorable for the new education in science, and has given the advocates of Latin, mathematics and modern languages, all of which have increased in the same period, grounds against the introduction of science in high schools, which some of them have not been slow to use.

From questionnaire and other data it seems to me plain and certain that the trouble with physics is simply that it has failed to take account of the nature, needs, and interests of high school boys and girls. The text-books in physics are essentially quantitative and require great exactness, and are largely devoted to precise measurements. The topics are admirably chosen, and in their logical sequence perhaps the best from the logical standpoint, and they are such models of condensation and enrichment that it seems to the organizer almost perversion that our youth pass it by. But boys of this age want more dynamic physics. Like Maxwell, when a boy, they are interested chiefly in the "go" of things; those with aptitudes for physics want and need wide acquaintance first with tops, kites, and other physical toys, then with clocks, dynamos, engines,

machinery, with some experience in running it and using tools, in looking into, taking apart and putting together almost anything that will go. Moreover, exactness comes relatively late in the development of the youthful mind as it did in that of the race, long after interest in general principles and especially forces.

The normal boy in the middle teens is often a walking interrogation point about ether, atoms, nature of electricity, X-rays, motors of many kinds, with a special gravity of mind toward frontier questions where the great masters know as little as he. He would like to see hundreds of demonstrative experiments made in physics and the liberty to repeat most of them himself, without being bothered about mathematics. Moreover, he has a veritable passion for brief stories of great men. The heroology of the history of physics, if rightly applied, might generate a momentum of interest that would even take him through the modern course. He is essentially in the popular science age. He wants great wholes, facts in profusion, and very few formulæ. If he has had the very rare good fortune to have all this in the home environment of perhaps the son of a professor of physics beforehand, this course would be well. But as it is interest wanes, not so much because the work is difficult, as because to a mind scantily furnished it seems dry and formal. If the course is taken to the end, there is more satiety and fatigue than hungry curiosity about it on entering college.

The whole story of physics suggests the old tale of the duck farmer who was also a chemist, whose researches showed him conclusively that one thing that would fatten the eider duck most cheaply and rapidly and give its flesh a delicacy that no epicure could resist, was celery; but when his duck farm was finished and complete he found celery to be almost the only thing that his fool ducks could never be induced to touch. So all the educational legislation and curricularization in the world will forever abort if it does not take careful heed of the interests and capacities of pupils. It was perhaps one of the most eminent physiologists of the last half century who after long study thought he could artificially digest certain foods in re-torts so completely that by injecting the pure chyme of it into the aorta he could dispose with all the preliminary stages of digestion that were performed in the alimentary canal, and by thus freeing the energy so used for culture could mark a far greater epoch upward in the race than that caused by the descent or control of fire and by cooking. Fortunately, he tried his experiment first on dogs, rabbits and guinea pigs; for all died of too much richness and condensation.

In 1899, 239,981 students in American public high schools

were studying Latin, of whom 47.55 per cent. were male and 52.45 were female. The increase from 34.69 per cent. in 1890 has been quite steady. In the eight years preceding 1898, while the total high school enrollment increased 84 per cent., the pupils in Latin increased 174 per cent., or twice as fast. It was taught in 4,706 of the 5,495 public high schools in the country and taken by 16,672 more students in 1899 than in 1898. This is all the more remarkable when we find that the proportion of high school pupils in the country, who are reported as fitting for college in any grade, has declined from 14.44 per cent. in 1890 to 11.54 per cent. in 1899; that in Massachusetts, where there are 13,563 high school pupils the first year, there are only 4,655 who enter the fourth year, and in 1899, 818 who went to college, or an average of about $3\frac{1}{3}$, were from the 244 Massachusetts high schools. While we have no direct statistics upon that subject, it is plain that the great majority of those who begin Latin in the public high schools not only do not enter any higher institution, but do not graduate from the high school. In Massachusetts only half those who enter the first reach the third year, and only a little over one-third of them reach the fourth year. It would be interesting to know, what I can find no statistics to tell, whether it is not mostly these embryo Latinists who drop out limp, discouraged and disappointed. This fact constitutes an extraordinary situation, which classicists think a triumphant vindication of their claims of the inherent culture power of Latin, which the public at last recognizes, and a defeat of those who would establish science. It seems a victory of the old college idea. Some Latinists take bolder and more advanced grounds and agree with Bennett, who urges that language is the supreme instrument of culture, and Latin is the supreme language for education. Whereas Latin was formally defined as a good thing to know well, Bennett argues that its best use is for those who go but a little way in it; that it is a better drill in English than English itself, and better than French and German, because these are so soon and easily acquired to the point where they are read without translating as we go along into the vernacular. Just as soon, he says, as the content dominates words, "the mind is carried away by the general sense and the details and shades of expression escape." The end is linguistic, not literary; thought must not move too freely in the new language; proficiency in it must not go too far; and even after we know it pretty well we must persist in translating into English as we read. The highest value of this choicest topic is not only for beginners, but, says Bennett, for those of average ability. Only for those exceptionally gifted is the study of the mother tongue alone sufficient, and its educational value cannot be secured by

those much below the average ability. If this is not so, he says tens of thousands of high school pupils are making a prodigious and most wasteful error, and the sooner we recognize it, the better for our civilization. This latter alternative, I deliberately believe, and hold that the modern Latin craze is calamitous to the point of pathos, especially in view of the urgent need of other topics.

The facts needed for a full explanation of this rage for Latin are not all yet at hand; many of the causes are external; in some high schools Latin is required for the first year or longer; in others strongly advised. Again, as the high school in a sense sprung from the old Latin school, it still means Latin to a large part of the community, most so it appears among Roman Catholics, and there are many indications that the percentage of girls studying Latin will soon exceed that of boys. Latin, too, has acquired much momentum by inheritance from the old but often defunct English grammar with parsing and analysis. Those who hope and wish to teach find it next to algebra the safest investment, and it is the best students who hope to teach. Again, it is one of the cheap subjects to teach, especially as compared with science, and Latin teaching is more open to women than science.

The chief cause, however, I believe is its prestige and tradition, which are prodigious. This superstitious reverence of Latin has a second illustration in the autobiography of Booker Washington, who says that during the reconstruction period from 1867 to 1868, the colored people had two crazes—to know the classical languages and to hold office. It was felt, he adds, that "a knowledge, however little, of Latin, would make one a very superior human being, bordering almost on the supernatural," and he conceives a large part of all his own mission among his race to be the overcoming of these two passions. Latin is or has been so inexorably demanded by the college gatekeepers that to omit it on entering the high school has, often meant to abandon all chance of going to college however faint the prospect be. So thoroughly are even public high schools permeated to the saturation point with academic interests that work from the higher institutions downward, and so as yet unformulated and dumb is the sentiment of the people who founded and supported the public high schools to fit for life instead of for college, that perhaps nothing in our whole system of education better illustrates how extreme one tendency may become in a transition epoch before the inevitable reaction.

I will not raise here the ghost of the old discussion which has raged about the classics, but I do protest that everything we know of nature and needs at this age cries out against mak-

ing the early stages of Latin, for those who will soon drop it, the best study they could select, and I urge that this new craze for Latin rudiments involves losses no less than tragic, whether we consider the arbitrary and conventional reasons of choice, the purely formal nature of the training just at the age when the soul most hungers for substantial courses now so well supplied and which are so much better for all that great majority who enter the high school and leave before graduating.

The careful recent studies of truancy and runaways show that most occur in the early teens and are due to unconscious hunger caused by bad home dietaries; so I am convinced that mental mal-nutrition, thus caused at the age when the appetite for content studies is at its height, by thus offering a stone to those who cry for bread, is responsible for the rapidly decreasing numbers as we go up the grades of the high school. While the influence that has lately worked from above downward has done great good in many ways, I believe that we have here one of the worst results of the invasion of the high school by the college, which began with the report of the Committee of Ten, with its crude and obsolete faculty psychology of culture values and its complete ignoring, not only of every genetic principle, but even that there was a genetic standpoint, and culminated in the able but perverse and unpedagogical arguments of Bennett.

Moreover, as compared with science, Latin is not only cheap, but an easy subject to teach. In few branches does a little knowledge go so far with a teacher, and in few can it be used in such an imposing way to drill and break in boys on a small capital of knowledge on the teacher's part. We have here hardly raised the practical question of the Frankfurt method of teaching a modern language a year or two before Latin, which one of its German advocates states brings boys of the same age as far after two as formerly after five years of study of it. I plead for the great majority who begin Latin and abort at an age when use and pleasure should be more associated than they are here, and for an education that means growth, in the sense of laying down tracks over which more of the traffic of later thought and life will go. If it must be that the great majority who begin the high school do not finish, instead of focusing our energy upon the few who get to college, we must so teach that pupils will be best fitted to leave at any time; or, if they do leave, shall not do so because they are gradually disenchanted by difficulty or aridity, or grow restless because they find other things in their new horizon more interesting, or have growing confidence in their own powers of choice, or are discouraged at the vista of years of work for which they have lost heart, and so, without fully knowing the cause, life attracts

them more and school less, till, in Chinese phrase, they "lose face" and fall out, when if, as Professor Hanus well desiderates, the life of the community had vitalized the school, the moral waste of abandoned beginnings would have been saved.

English properly outranks all other studies, being often required of all, throughout the entire high school and early college course. No topic counts more points in examinations; often the English of papers in other subjects is considered a part of English, and marked deficiency here debars from all courses. But the first great violation of nature's law of mental growth here is that form not only precedes but outranks content. The Cornell catalogue typically states that "in every case the University examiner will treat mere knowledge of the books as less important than the ability to write good English," and most colleges lay great stress and expressed upon spelling, grammar, a knowledge of sentence structure, punctuation, paragraphing, etc., while rhetoric and style are excessively and prematurely emphasized, and the study of English literature often comes only in the last year or two of the high school. The college task-masters are themselves often stronger in English philology than in wide and sympathetic knowledge of English literature, or at best, are more critical than creative, fonder of minute and careful reading of a few masterpieces than of wide, general knowledge which the youthful mind chiefly seeks, and this is reflected in the copious annotations and the text-books. Wherever this method really takes root, and it rarely does in the youthful mind, we see its results in the ultra-fastidious effusions of the best writers for college journals, whose art culminates in the over-refined elaboration of some petty trifle, all form and no content, of a kind which constitutes so many of the illustrations of decadence cited by Nordau. The old slogan is that, if anything is done at all it must be done in a minute and exact way, and the prim and precocious proprieties of Addisonian syntax are rated higher than the more unconventional virility of a Kipling. The progressive feminization of the high school is perhaps also seen in the standardization of Tennyson's "Princess," much of which the standard boy of the middle teens regards as saccharinity ineffable.

How different all this from the standpoint of those who believe in consulting human nature and needs. On entering the high school the average child has essentially passed the stage of juvenile reading. Animal, detective, wildly romantic, and outlaw themes are on the wane, but there is a rapid rise of the curve of normal interest in travel, biography, exploration, adventure, literature with abundant action, perhaps dramatic, but always somewhat exciting and adventurous. Every census, now scores in all, shows that in the early teens there is

for the average child something of a reading craze, as if now for the first time the mind took flight in the world of books. More are drawn from libraries; more pages and more varieties of themes are sampled than at any other period up to perhaps the middle of the college course. The youth has a passion for reading things somewhat beyond his own experience. It is the age when Edison resolved to read the Detroit Public Library through, and read twelve solid feet, and then, as he says, stopped reading forever. It is, however, the reading of the prospector and not of the miner, the age of skipping and sampling and pressing the keys lightly, until something absorbing is found that feeds the soul. Girls, who always read most poetry, not only like most that boys do, but exceed them in preference for books by woman authors which boys eschew, also in those which center in domestic life and with children in them; and only after considerable experience with this freedom does any natural sense of style arise, or any strong impulse to express some embryo content of the mind, which is the bud of literary activity. School pressure has had much to do in either suppressing or arresting this passion for reading by hastening to control or direct it, or develop a critical state of mind that suppresses the creative impulses that are now putting forth their first tender buds.

Again, at no stage and in no department of psychic life are the receptive powers so far in advance of those of expression as here. Plasticity is at its maximum and utterance at its minimum. The mind is a sensorium, responsive to everything in the environment, but the very abundance of traffic inward obstructs the outward currents. Boys especially are liable to be dumb-bound, or almost aphasic, save in their own vigorous and often inelegant way. So many new things are reverberating in the new life to which the soul now awakens, that nature prompts a kind of modest reticence for which the deflowerers naïveté of the callow, ephebic soul should have some respect.

Again, good English really lives on the short circuit from eye to tongue, which is, we know, many ages older than the new long circuit eye-and-hand method of Cadmus, concerning which the best historian of French literature well shows that its golden age was when conversation dominated style and the worst when people talked bookishly. Children in school cannot all talk at the same time as they can all write or read at once, so that the old method in literature or oral transmission before printing arose has turned school-work so largely to writing that the graces of speech and reading aloud and story-telling are too often subordinated.

I doubt if among all the recent triumphs of the uniformitarians any has been worse than marking off a definite quan-

tum in this great field, or more violence done to both the subject and the youthful mind. The wide acceptance of these requirement books and authors marks, I believe, a pedagogic decadence, which in a future far nearer than we dream will be pointed out as the low water mark of English teaching which the last century can show, and as one of the most disastrous triumphs of mechanism and convenience over mental needs. Some universities hold out against it, like the Stanford, which offers five large groups of books and authors, including even the gospels and parts of the Old Testament, from each of which the teacher may select any one or more, and not only that but any substantial equivalent of this will be accepted, the university freely undertaking all the additional labor and setting and reading papers in some way, which must make the over-organizers gape and stare. We cannot, perhaps, so at least the great variety of choices of the hundred best books indicates, even reach anything like a biblical canonization of the things really best and most classical for youth and have a school Bible, as a late English writer wishes. Whether this great task was considered or even seen by our English committees, I do not know, but we have a most suggestive approximation to it in the new *Deutsche Lesebuch*, by Hopf, Paulsiek, and other secondary teachers of German, in nine volumes of over 3,602 pages, published during six years ending in 1898. The page is large; the type is a model; and the paper and binding so cheap that each child can own his library. The work begins in octavo, and in the lower grades great prominence is given to saga, legend, *Märchen*, fables, proverbs, hymns, a few prayers, Bible tales, etc. Every department and period of German literary history, from the Niebelungen down to a few living writers, is drawn on. Many careful digests of great standard works embodying salient phrases and quotations from the original, epic, lyric, poetry, exploration, adventure, biography, and even jests and humorous tales, which, it is explained, must all be read as a part of the course in English with a little of it studied in detail and memorized—all this marks a new and important step toward the practical solution of the great problems of language and literature in secondary education, which should be pondered. It is no mere aimless anthology or chrestomathy like Chambers's *Encyclopaedia*, but is one of the best products of prolonged and concerted study of how best to draw upon all the sources of a great national literature in a way to feed best each nascent stage of later childhood and youth, so that profit and pleasure are best combined and so that the chief end of reading for the young, which it should not be forgotten is primarily ethical, is not ignored, and the literary instinct is allowed to irrigate a wide field instead

of encouraged to cut a deep cañon and leave desert plains on either side.

I have no time here to speak of algebra; almost purely formal, nor of other topics which I shall speak of later, but pass finally to the question—what are the causes of this pedagogical decadence? First, I think we must place the iron law of maximal ease which has made sophists, literalists, methodasters. To drill and break in the youthful mind is easy. Under no conditions can a precisian so dominate as at this age, when the soul cries out for wholes, not details; for facts, not formulæ; for crude masses of information, not for accuracy or analysis; for growth, not for logical order. Wherever we insist upon accuracy and finish, we are forcing nature, which decrees that youth should be kept plastic and growing. This evil is directly as the teacher's ignorance. Inadequate knowledge on the teacher's part is the chief high school evil which instinctively seeks shelter, dignity, and ease in formalism.

A second cause is lack of knowledge of the nature and needs of youth and the laws of mental growth. Our colleges and universities have not cultivated the true psychology of education, which is essentially genetic; and our academic chairs in this and allied departments, while often filled by men of the highest ability, whose achievements have justly won wide recognition, have persistently maintained toward genetic psychology, which is only the higher evolution entering the field of mind, the same attitude of indifference or even hostility that Agassiz maintained toward evolution. The analysis-plowing and cross-plowing of the adult consciousness, of late so overdone, can, as has been truly said, render little service to teachers and may even do them harm. But without knowledge of the later genetic stage of adolescence, teachers are handicapped by an ignorance which hinders much of their best work, at best provincial, because failing to recognize that the cultivated adult of to-day, whose mind is so overstudied and overexploited, is only a single stage of the development of mind in the world. Introspection even aided by new laboratory methods, can never restore the lost or losing ideal of the possibilities of adolescence, which has a new message of humanism to the world of education from a source richer and more original than that which was opened to the teachers by the Renaissance. It reinterprets and enlarges all traditions of liberal education by insisting that the only way to fit for the next stage of training is to exhaust the possibilities of the preceding stage, and to supplement knowledge and love of subject-matter by that of youth, devoted ministry to which makes teaching, as it always is at its best, the lasting and crowning manifestation of the parental impulse.

Third, the most important principle of the Committee of Ten is that the subjects should be treated alike for those who go to higher institutions and for those who do not. Only if these two classes of pupils differed very widely in ability would this principle be false; all admit that each topic must be treated in a different manner in schools for subnormal children just as all buildings cannot be begun in the same way. In a large and general sense, I believe it is profoundly true, but has nevertheless done incalculable harm and has been calamitous in its results. First, because, through no fault of its literal form, it has been very widely understood by parents and pupils to mean that the best way for all to begin in the high school is to start to fit for college, and that thus least will be lost and most gained even if they never get there. Thus certain topics are begun and arrested before they have been carried far enough to yield practical results for life, such as could be secured by less proficiency with other topics. Secondly, it has been calamitous because often associated with the absurd postulate of the equal educational value of all topics if taught equally well. This is almost the apotheosis of formalism against content studies. It has affected the choice of topics unfavorably, and is one partial cause for the excess of Latin. But, third, the chief harm of this dictum itself is that it has reinforced the assumption that the methods and subjects in vogue for those who go to college are the best. It is true that all topics should be treated alike, but the methods should be genetic, while the dictum has reinforced the logical method because it was in the field and sanctioned by the colleges, whose methods when transferred to lower adolescent stages do them great violence. By thus laying excessive stress upon the logical, scientific methods, fitter for college than high school, and discrediting everywhere genetic methods, incalculable injury has been done, whereas if these latter had been known and recognized as normative and the principle of like treatment had diffused and reinforced them, good and not harm would have resulted.

Lastly, we have in this field to face great and growing dangers that threaten the dignity and independence of secondary teaching, which must know, be, and do things that higher education knows not of. Thring, Arnold, and the founders of Schul Pforta did not owe their eminence to their success in meeting requirements of universities, because in most European countries entrance examinations in our sense are practically unknown. The high school teachers are now exposed to dangers akin to those of small merchants who drift to great department stores in the city. They become clerkly, like office lawyers working under orders. They seem content to sit as lay figures in the councils of their own government anxiously awaiting

the assignment of their stint with the spirit of faithful and devoted servants, honored by the confidences of their masters. In France, where over-organization has done perhaps chief harm, it was lately seriously proposed that they wear a uniform or livery. In England, Germany, and France, where the universities all once conducted entrance examinations, they were long since essentially abolished. Even in England, that land of examinations, they were given up in the second quarter of last century according to Mark Patterson, because they could not be made adequate tests of power; and in Germany and France, because of the increasing power of trustworthiness of teachers in the secondary schools. The present, almost feudal, dominance here of colleges or universities over the work of this grade is something that in its methods is without precedence in other countries or in the history of education. Many high school teachers in the Middle States and New England are ready for the mere convenience of fitting for one examination of a joint board, instead of meeting the differing requirements of college, to sell their birthright and independence. High schools and their pupils have doubled within the last decade, and are now over saturated by college interests, because these were more alert and first to assert themselves in the new and widening high school field. When the public high school really becomes, as it surely will, the people's college, permeated with the ideal of fitting for life, which is a very different thing indeed from fitting for college, then secondary education will become truly democratic; it will have plenty of local color and fitting for colleges will become, as President Jordan well says it should be, a mere incident. The public high school will say to the college, fitting is not our chief business; you are not our pace-maker; our business is to do the best we can for you at this stage; take our finished product or leave it, but if either of us bend, it must be the college.

The greatest need of adolescence to-day in New England is another association of public and English high school teachers, working independently of the college and in the service of the great public that supports the high school, interpreting its needs and striving to fit for life and not for college. Without some such new departure the work of this association, which has done so much good, but in so much of which we hear the jingle of the keys of the college wardens, will grow still more one-sided and its work be still more overdone. Such a high school renaissance would show no longer an increasing number of male teachers, who drop out because they cannot be true to their own convictions in a noble, manly way. It would bring to the front a class of high school leaders less supple and less servile, and more devoted to do their best to develop youth

at a unique and most critical stage of life, and free this work from the dominance of college professors, who would do more for science if they gave to productive research in their own departments most of the time, now often worse than wasted in dictating to high school teachers and increasing the now excessive number of high school text-books, and in other ways recruiting for their college.

NOTES ON SCHOOL ACTIVITY.

By E. KATE CARMAN.

The following notes are offered without comment merely as a record of facts in daily school life :—

BOY. FIRST RECORD.

A boy of the mountains of western North Carolina, Scotch ancestry, 14 years old, 4 feet 4 inches tall. Blonde, sharp blue eyes. Active as a flying squirrel. Almost primitive in his instincts.

The first record is during study time only, no account being taken of recitations. Hence a day was selected which contained fewest recitations.

The second record—though at best deficient—is a faithful effort to keep tab of all a school day.

May 2nd, 1901. Clear and very warm.

9-9:15. Opening exercises. Quiet except working almost constantly with ink-well.

9:15. "May I get a drink?" Back at 9:22. Miss Gould said afterwards, he found a fishing worm, and took it into the aquarium for the fishes, consuming some minutes in giving advice about the need of regular and sufficient feeding.

9:22. As he came in at the north door, asked if he could leave the room, and went out at the south door. Back at 9:32.

9:32-9:35. Sat at his seat reading work previously prepared.

9:35. Asked to speak. Spoke to *three*. Back to seat at 9:36.

9:36. Up to my desk. "May I go in Miss Gould's room and get my pencil?" Right back and at his seat.

9:38. Up to my desk to ask if his English work is right. Back to seat. Sat down, stood in aisle fastening papers together a half minute. Sat, resumed his English work.

9:40-10:10. Recited English.

10:10. "May I get a knife?" Went across the room to get it. Sharpened pencil, went and returned knife. Back to seat. Got up and went to back of room to see some work on the board. Back to seat. Across the aisle to give Daisy twenty-five cents. Sat behind her.

10:13-10:16. Studied in this seat. At 10:16 I asked him to take his own seat as he was pulling Daisy's hair.

10:18. "May I speak?" Turned and spoke briefly. Turned back and sat with open book watching board-work of the class I was hearing in beginning geography.

10:20. Raised hand and joined in a talk on alligators. "W'y no 'm, they won't eat nothin' till the first of May, an' if they bite you, they won't let go till it thunders."

10:22. Pulled Daisy's hair and ran out his tongue. I spoke to him.

10:23. Heard some one in the hall. Hand up, "may I get a drink?" Right back. Stood up by his seat, twisted, wrapped one leg around the seat, watched some board-work, one foot upon the seat. I looked at him. He sat.

10:25-10:27. Studied.

10:27. Stood up in aisle with back to me, looking at a finished map on the board that had seemed to interest him. Writhed around, hands in pockets and out again; not a still muscle in him.

10:30. Recess till 10:45.

10:46. Came in one minute late. Had gone too far on his wheel and rode like mad to get back. Pulled the hair of three girls going to his seat.

10 minutes for a written lesson in spelling. Always one word behind. In correcting their papers (each marks his own) I asked him to spell separate. Quick response, "S-e-p-a-r-t-a-t-e, no 'm, t-r-a-t-e—no 'm, now wait a minute, I've got it right only I just got bothered—s-e-p-a-r-a-t-e. Goody! I did n't miss a one."

10:55. Left seat to get a knife. Stood and sharpened pencil.

10:55-11:05. Class in nature study with Miss Gould.

11:07. Asked to leave the room.

11:12. Returned with an explosive account of a snake he had seen. I suppressed him, but as soon as he thought I was engrossed in a recitation, he stood in the aisle and measured off that snake to his neighbors.

11:15. Sat and wrote. (I thought actually working.)

11:16. Threw a note at Tom. A very rare occurrence, but that snake was too much for him. After a nod from Tom, he settled down to history—book open. Studied 6 minutes.

11:22. Up to waste basket with paper—back to seat. Up to desk, asked for music to copy words. Went to piano and got it. Wrote till 11:30.

11:30-12. Recitation.

12-12:30. Recess.

12:30. Ran up steps throwing new-cut grass on the girls. Tickled two as he went to his seat. Resumed the copying of music.

12:32. "May I go to the door and cool off?" (Cruelly.) "No, get your arithmetic." "I've got it ever one." Sharp-
ened pencil—returned knife. On his way back, got a long
piece of string from Samuel, returned to seat.

12:33. Stood up. Made a cat's cradle. Unmade it. Made
a 4-ply loop and hung knife on to his belt. Looked at Jim and
whispered "Can't lose it now."

12:34. Sat—and studied six minutes. (Seems to be the
maximum stretch.)

12:40. "May I get a drink?" Gone two minutes. I went
after him. He had thrown water on J. A. from Miss Gould's
room. Face all clean and shiny; hair sleek and parted in the
middle, dripping down both sides.

12:43. Goes to a back seat to take down some English on
the board.

12:45. Recitation in arithmetic. Rushed out ahead of Tom.

1:15. Back. Reported "100" as he passed my desk. Back
in the room to copy English. I asked him if he knew his his-
tory. "Yes ma'am—pretty near all." Studied.

1:20. Asked to speak (consulted Carrie about English I
think). Raised hand, "Miss Hughes, isn't which a pro-
noun?" Points finger at Carrie. "Eh—I told you so." Sits
down there works on English.

1:23. A dog walked in, and up he jumped to put him out.

1:25. Up to desk to ask if a sentence is right. It was
wrong. As he goes down the aisle—"Oh, I know now,"
winks at me and smiles.

1:27. "Can I speak?" Spoke to two.

1:30. Pulled Daisy's hair. Settled in his seat, and assorted
papers.

1:32. "May I speak?" Then writhed around in the aisle
with one foot on his seat till

1:35. Class in history.

This till two; then school is out.

SECOND RECORD.

Friday, February 28th, 1902. Cool and clear after a terrible
storm and flood.

9:00. Bell tapped. Skipped from back door through the
room to get a drink.

9:01. Came to his seat. Spoke to Fanny. Roll-call. Sat
down and looked around. Opened desk, and got book. Opened
it again, and got arithmetic. Laid it by the other book, and
drummed on desk with his fingers.

9:05. Scripture reading. Sat still and looked around. Tried
to make a hole in button with his knife. Prayer. Body in-
clined—gazing all around the room.

9:07. Left his seat. Whispered to Fanny, then to Fred. Returned to his seat when told. Stood up, said to me, "Didn't think I'd get A in arithmetic." Spoke to Fred. Stood up and examined his report card two minutes.

9:10. Cut button clear off. Went to front register, stooped down and felt it; then went to back register, sat down by it; carved button, spoke to Harry, sharpened Dolly's pencil.

9:11. Came to seat. Went back, spoke to Tom, returned to seat, got report, took to Tom, and discussed it. Came back and stood at his seat, said to teacher, "Last term I got C B C B, bad, bad."

9:12. Sat, got tablet out, said something to Kate. Put penny under paper, rubbed it with pencil, and showed to Fred.

9:13. Got out report, put it back and scribbled on tablet. Said aloud, "Miss Hughes, wish we had a spelling class." Up to waste basket with paper.

9:14. Went over and spoke to Harold, took his seat. Back to Harold, exchanged pencils. Took his seat. Again to Harold, got his knife. Back to his seat.

9:15. His class in arithmetic is called. "I got three examples"—as he took his seat in class. Whispered to Tom. While Eben is at the board, he twists about on his seat, watches work, raises his hand. No response. Scratches head and looks to back of room.

9:18. Moved over by Lewis, showed knife he had got from Harold. Examined it closely, sharpened pencil, clicked the blade fifteen times. Gave it back to L. Watched the board, thumping his cheek with pencil and twisting feet under his seat.

9:20. Sent to the board. Repeats the teacher's question instead of answering it. Scratches head with pencil and looks around. Works at board. "No 'm, that 's wrong"—erases. Writes it correctly, answers three questions and takes seat.

9:22. Twists legs, puts knife under his seat and cuts the seat a little, leans forward to see work, runs pencil in mouth and around lips several times, rolls it between fingers. Raises his hand. Answers Eben's question. "Let me do that un please. Yes *ma'am*—I can do it. Oh—I know it just as good." Goes to board. "I'd do it this a way—there!" (wrong), does it again quickly, right.

9:24. Takes seat. Puts head way back, bumping Kate's desk-top, which was up. She caught it. Peers around and grins. Scribbles in tablet. Shows Tom—and says something. (Evidently a puzzle, and shows how to do it.) Laughs, closes tablet. Folds his arms and watches Fanny at the board.

9:23. Leans forward—then towards Tom, grabs his pencil,

gives it back. Leans forward as teacher asks for attention. Writhes; hand down under seat scribbling. Hand up, "Oh—that's wrong." Leans back, laughs at another mistake.

9:26. Says something to L. Quiet twenty seconds. Raises hand—"Miss ——," laughs, drops pencil, picks it up, rolls it in his hands, looking at board, drops it again, picks it up.

9:28. Stands up and forward to see the board, taps his foot. Sits down, both feet on floor. One foot clear up on chair, the other swinging—then down again. "Four—it's four Miss Thompson." Looks at J. at board.

9:29. Gets Tom's knife, speaks to him, opens blade, trims thumb nail, rubs nail with fingers—then the blade again, sitting still a half minute. Leans forward, raises hand, answers "Hundredths—tenths, no 'm—ma'am?" Again at thumb nail. Opens two blades, clicks one shut.

9:30. Shows Tom, speaks to him, stands, hands paper to teacher, talks to her.

9:31. Class dismissed. Took his seat.

9:32. "May I get a drink?"

9:33. Came in. "Miss Hughes, there must be a leak out there—the water's runnin' all over everything." Took his seat, and sprawled all over it. "May I speak?" Spoke to two in back of room.

9:35. Came past Eben's seat, touched him, came to his own seat, stood up, got out a tablet, laid it on desk, spoke to Fred. Hand up. "May I get a tablet like this from George to copy tactics out of?"

9:36. Stopped at Robert's desk, looked at his work, came on, stopped at Fred's desk, looked at Youth's Companion. Came to his seat—ran back in the aisle to get something.

9:38. His geography class called. Took seat beside Lewis, talked to him.

9:39. Still one minute. Answered two questions asked other pupils. Went to map—recited about fertile parts of Africa, and pointed them out. Told well about the Nile country, but did not know the southern country. Asked some questions about it.

9:41. Sat down, hands in pockets, seemingly interested in lesson.

9:45. (Teacher suggested estimating length of some of the rivers.) Took book out of Lewis's hand to find map, allowing L. to look on. Returned book. Wrote on hand the length as given in back of book. "Let me tell." Gave number. When this was found unsatisfactory, took book again and measured with pencil the Mississippi to compare with Nile, while another was reciting. Put in answers to questions put to two others. Spoke to L. Hand up, frantic to answer another

question—but kept quiet. (Fred told to locate Nile cataracts on wall map.) “Oh—I see them from here.”

9:50. “Have you ever been in Africa Miss H.?” “I’d like to see the big pyramids.” “The people worship the Nile and feed their babies to the crocodiles, don’t they?” Then told how people live in boats during the overflow, standing up, hands in pockets. Sat down and listened attentively while Miss H. told of surveying among ancient Egyptians. Played with button on coat lapel. “Arabian horses are noted for their beauty.” Took button off lapel and pinned it on again.”

9:53. “Mexican ponies—why they are good horses too.” Sat with hands under his legs—both legs violently swinging. “The Arabs they have rings in their noses.” Spoke to George—then to Fred.

9:55. Head down on hands, elbows on knees. Hand up, “Let me tell, please Miss H.” “W’y the men they have some kind of dress on (stood up). They have a moon on their foreheads—I seen regular Arabs in Buffalo Bill’s show—w’y Miss Hughes Buffalo Bill is in Charleston now.” When the class is told to open books to see next day’s lesson, he looks on his right-hand neighbor’s book, then on the left, then at the second on his right, nods as he sees extent of lesson.

10:00. Class excused. Went to his seat, ran to back of room, darted back, slid in his seat, got out note book. Got arithmetic, put it on his seat and sat on it. Closed note book. Went back to George, stayed a half minute, trading something. Back to seat. Stood up. Tried to pull button off his coat. Could n’t, so he took out knife and cut it off. Leaned over and whispered to Kate.

10:02. Told to put up map of Africa, and get down another for next class. Drew down the map; before replacing the map-hook, used it to present arms, winked at boys in room, stood it in the corner, saluted boys and took his seat. Stood up, boring button with his knife. Went to back register. Worked on button—sharpened Myrtle’s pencil. Put button on seat, worked hard trying to drill hole in it.

10:05. Told to take his seat. When about to sit down, raised hand and asked to go out. Went.

10:06. Came in. Stopped to look at paper on a desk. Came on rather slowly, said something to Fanny. Sat down, turned and spoke to Ethel. Turned back, got out his geography, and studied, head on hand and lips moving.

10:09. Picked up tablet, wrote on it, made a blot, got out knife and scratched it off—wrote more.

10:11. Put tablet away. Spoke to Fred diagonally back of him. Resumed geography, head on hand, studied *hard*.

10:20. Put geography away. Stood up, turned around,

asked to speak. Went back and spoke to Nora. Came to seat, turned around, spoke to Ethel, turned back, yawned—stood in other aisle, lifted desk lid, arranged contents.

10:22. Put Youth's Companion from his desk on another. Got out copy-book, spoke to Fanny, sat down, got pen and wrote.

10:25. Put copy-book in desk, and got a paper-backed book. Began to read assiduously.

10:26. Put book down. Yawned. Turned around. Resumed book.

10:30. Recess. (The book I found to be "Face to Face with the Pirate Captain"—sample sentences of which I append.) Recess of ten minutes spent in playing Indian with spears—three of which he had while other boys had one.

10:45. Bell rang. Ran wildly around the house with a spear in each hand, and one thrust through the front of his coat, whooping all the time. Came in quietly. Sat down and read book.

10:46. His literature class called. (Stayed in his own seat behind first row.) Hand up to answer first question, jumping upon his feet at the same time. (Gave narrative of Lady of the Lake, Canto IV.) Sat down, reading Pirate.

10:48. Hand up—answer correctly given—Pirate in the other hand. Answered another question—and resumed book. Some one in class said witch is the feminine form of wizard.

10:50. He leaned over to Tom and said in stage whispers "wizard—wizardless," whirled back with feet in other aisle, scanned some work on the board belonging to another class, back again, stood up and recited well for two minutes.

10:55. Up to waste basket with paper. Back to seat. Opened Lady of the Lake again and marked words and passages for special study. Very attentive for ten minutes while teacher directed all in this work.

11:10. Class excused. His English class called. (Today's lesson mostly a drill in pronunciation very easy to him.) Goes to seat and comes back.

11:12. Hand up. "Venison is deer meat." (Quite unsolicited, as definitions are not called for.) Hand up again. "Which means a soldier, calvary or cavalry?" Listened and laughed at some efforts at pronunciation.

11:15. Changed to next chair. Spoke to Fred and gave him a little sen sen. Both taste it very cautiously. No attention to recitation. Played with a paper fastener. Dropped it, picked it up, and put it in his pocket. Turned around, spoke to Millie—showed her sen sen, ate a little.

11:18. Teacher wrote some words to pronounce on the board. He moved to edge of platform to see better (?), and sat

down on it. Leaned back on waste basket. As it moved he turned towards it and investigated contents. Watched words, volunteered pronunciation for each one—turned over papers in waste basket. Pronounced bulbous—"W'y a piony's a bulbous plant and an Irish potato."

11:21. Opened his grammar and read quietly. Ate sen sen.

11:25. Borrowed pencil from Robert. Traded a small one for it. Stood up, looking at words, went to his chair, sat down, looked about quietly, except swinging his feet.

11:30. Class dismissed. Went to seat, got out note book, put it back, got out the Pirate. Asked to speak. Went to Fred, traded pencil for some transfer paper.

11:31. Back to seat. Teacher gave him a history to study. Read it five minutes.

11:36. Leaned forward listening to some one in the rhetoric class read a production on snakes. Studied history—head on both hands and book flat open on the desk. Mr. H. called—heard rhetoric work and talked a little to class. Paid no attention. Absorbed in reading.

11:50. Leaned over Vinnie's shoulder to see their next lesson, as it was assigned. Put mark in history, came forward and put it on desk,

11:52. Class dismissed. Writing period. Gets out copy book. Spoke across the aisle to Daisy. Begins to write carefully.

11:53. Asked to speak. Went to Fred. Spoke a half minute. Back to seat and writing.

12:00. Noon recess. Ran back to George, said something—then to Nora—back to seat, lifted desk lid, took three biscuit sandwiches and ran out. (During recess two dogs were killed not far from school. One lay near the street, and the children all went on the other side of the street looking quite askance at it. He went over near it, looked a minute, then threw one of his spears at it. This stood almost upright near the head and remained there.)

12:25. Came in slowly. Looked at me and said "Killed two." Sat down, got out the Pirate and began to read. Still, except attention to his nose, for six minutes.

12:31. Turned to notice new arithmetic lesson being put on the board. Put hand back on Ethel's desk and thumped till she slapped it.

12:31-12:34. Read again. Very still.

12:34. Reminded by teacher of arithmetic to do. "I've got all *that*."

12:34-12:45. Read. Legs apart, feet together—diamond-shaped. Head on one hand—then on both.

12:46. Class in Hawthorne's Wonder-Book, of which he is

a special member at his earnest request. Came to class talking to Fred. Sat and began to turn leaves. As soon as some one else began to read he turned to back of book and read quietly, legs crossed—feet on under part of chair.

12:52. Followed lesson as Fred read, whispered every hard word to him till checked—kicked George, looked all around.

12:54. Hand up to head—hand up—then stands and reads aloud. Pigeon-toed—both feet moving a little, and when still toes moving constantly.

12:55. Sat—both feet upon round of chair. Rubbed his leg vigorously—pinched up the stocking and scratched.

12:56. Twisted lips with fingers—evidently trying to make them stay curled. Read in back of book again.

12:59. Head ducked down, absorbed in reading. Stretched right arm out—scratched his head—put hand under chin and pushed head up and down. Feet stretched way out—sitting on edge of chair. Read.

1:02. Sat up—beckoned to Tom, spoke to George, then to Fred. Stretched legs—poked George. Crooks his forefinger—then more elaborate gestures (no one noticing him).

1:03. Made funny face at Harold. Spoke to George, showed him a button; compared it with three others on his lapels (advertising buttons). Looks at book—follows a moment when some one is reading.

1:05. Writhed on seat—stood up—notices assignment of next lesson. Class dismissed. Goes to seat—lifts lid of desk, gets papers. Stands then sits, three times.

1:10. His class in Roman history. Stops at my desk to put some papers on file. Sits in class—shares Vinnie's book. Winks at Fanny. Quiet.

1:12. Reads a passage aloud and comments on it very well.

1:14. Sits, shows a hook to Vinnie—catches it on her book. Swings feet—pays close attention to others reciting. Raises hand.

1:17. "May I get a drink?" Stays out 3 minutes.

1:20. Hand up. Recites. Hands in pockets.

1:25. Sits—rather quietly listening to others. Begins to writhe, yawns, grabs Ethel's report, looks at it, and teases her. Gives it back.

1:30. Class dismissed. Goes to music class till two. Then school is dismissed. (No record of music.)

Names of chapters in the pirate book.

I. The end of a stormy life.

II. Night and morning.

III. A blow on the jaw.

IV. A hole in the ground.

- V. Entering the cave.
- VI. The cavern of death.
- VII. When the tide fell.
- VIII. Dick's nerve.
- IX. Lib's confession.
- X. The slip of a knife.
- XI. Facing ruffians.
- XII. The last of the sea-wolf.

Some sentences taken at random.

The light from the cabin lamp fell on the face of Captain Jubal, giving it a fierce look. The livid scar stood out in a ridge on his cheek, and his eyeless socket was repulsively red.

The first thing noted was that the failing light showed there the ghastly face and dark figure of the man in the water.

"There's old Peg-leg: his spook would haunt the treasure."
 "To say nothing of the man he shot when he fired at the one in the water there." "Woo-oo!" breathed Ben—"don't speak of him."

GIRL'S RECORD.

Record for one day of a little girl nine years old. Entered this school one week ago. Observations recorded by Miss Gould.

Monday, March 3rd, 1902. Clear and cool.

9:00. Promptly in her seat. Rose twice to spread her dress out, then sat with hands in lap, body perfectly still, had turned only twice during opening exercises.

9:10-9:20. Sat same way during period of nature-study, except hand up to her face twice. No part in the talk on birds, etc.

9:20. Takes out arithmetic, looks at it vacantly, turns pages. For five minutes, seems to study it a little, but she looks dreamily around the room several times.

9:26. Asks to leave the room. Goes very quietly.

9:30. Back. Sits quietly. Takes pencil and book—but does not study. Writes slowly in book—then erases. Turns pages slowly.

9:38. Seems to study. Lips move a little. Body and legs very still.

9:40. Her class in arithmetic called. Comes with others. Is the only one without her written work. When called on for first problem, does not know where the lesson is. Martha tells her. She reads "A little girl was sick three months and a half. How many weeks was she sick?" Stands a moment, then says "Four." I ask "How many weeks in a month?" Hesitates, then says five. I ask her to read line "g" above. Starts to read "j" I repeat. Starts again. After some confu-

sion finds "g"—reads "Four weeks make a month." I ask then "How many weeks in one month?" "Don't know." Reads it again—answers to same question, "Three." Reads it again, and very timidly says "Four." "How many in two months then?" "Five." After much assistance says "Eight." "Then how many weeks in three months?" Hesitates—then answers "Seven."

9:46. Some one else takes the problem. Holds her book and looks blank. At a mistake of Martha, raises her hand cautiously. Smiles.

9:50. Called on again, she adds slowly but correctly, 3, 4 and 5; 6, 2 and 3; 4, 5 and 2; 3, 9 and 1. Another time raises hand and answers correctly what some one else missed.

9:58. Back to her seat. Takes up book—lays it down, looks around. I ask her about an arithmetic paper due before this. Says she left it in her desk. Watches Willie behind her—then Arthur across the aisle—hands in lap—no book out.

10:05. Takes out reader. Seems to study.

10:06. Watches us tighten windows which had been rattling. Handles book.

10:20. Puts book away. Writes on some paper.

10:30. Recess. (The writing proves to be a tit-tat-toe design.)

10:40. At once in her seat and quiet.

10:44. Takes out tablet—looks around.

10:45. Class in reading called. Has not done her copy work. Looks blank—makes no reply when asked why. Ethel (who is not even in her class) says "She thought that was for English." Pronounces words at head of lesson. Out of 15 misses 3. Does not follow when others read. Reads very low—without a particle of life—says nes-tes for nests. Watches book—hands folded on top of it. Lesson is in four parts. Others tell which part they like best and why. She volunteers nothing—when asked says "This," pointing to page. "Which one?" "What I read." "What number?" Some one looks over and answers for her.

11:10. Takes seat. Handles tablet.

11:13. Takes out book—writes some spelling from her book. This very dreamily done, and looking about, occupy her 30 minutes.

11:45. Her spelling lesson handed in was as follows: (Words pronounced by teacher.) path, lane, thick, caks, hirer, barn, weeks, fathi, alrey, brano.

11:53-12:03. Writing period. Wrote in copy book. Noon recess till 12:25.

12:26. Came in one minute late. Sat quietly.

12:28. Took out a book. Looked around.

12:33. Began to prepare English lesson. (Sentences to be made from such words as horse, your, snow, etc.)

12:57. English class called. Others had eleven sentences; she had six. Two without capitals—four without periods. Does not write on the lines at all. An unusually good lesson for her. Sits motionless in class with hands in lap. When a sentence was read containing Ethel's name, turns and smiles at her. Does it a second time. "All to the board" is said three times before she moves. At last stands, looks around slowly, then goes. Makes two mistakes in dictation besides omitting question mark.

12:58. To her seat. Kneels to look in desk. Sits—turns head—stands a moment and handles book. Sits.

1:02. Opens book—writes.

1:10. Drawing period. She tries, but makes efforts of a five-year-old.

1:30. Goes with class for music. This till 1:55 closes the day.

LITERATURE.

Nature Study and Life. By CLIFTON F. HODGE, Ph. D. With an introduction by G. Stanley Hall. Ginn & Co., Boston, 1902. pp. xvi+514.

The last ten or twenty years have revealed to students of pedagogy in our country some strange phenomena of dictation from higher to lower schools. A slight appreciation of professional fitness combined with zeal and eagerness to have the lower schools improved as fast as possible, together with more or less lack of appreciation of the psychological demands of different stages of growth, and a confident assumption that the higher teacher of a subject ought, in the nature of the case, to know what the lower teacher of the same subject ought to do; these, with a real lack of professional fitness on the part of the elementary and secondary teachers to handle their own problems, have precipitated a decade or two of educational literature in which college professors have reported in committees upon work below the colleges which should have been handled by experts of the lower schools if such experts had existed. The secondary schools especially are full of text-books, *e. g.*, in physics and chemistry, made by college professors to teach such 'elements' of physics and chemistry as they want acquired in preparation for their college courses in those subjects. With scarcely more knowledge of the needs of growing minds and with greater ignorance of the meaning of the subject, men and women who lack even this eminence of view, have prepared encyclopedic courses in nature study which aim to teach the elements of *all the sciences* before the high school is reached.

Dr. Hodge has been led to do what he has done in this book by seeing just this confusion and by noting the rational absurdity of these encyclopedic and other monstrosities. He says he thought the pedagogues were probably handling the question,¹ but discovered the real state of affairs a few years ago. The results of his observations have been years of trial of what he has put into this book and finally the book itself. Though himself a university professor of biological subjects, he could not be convicted, upon the evidence furnished by the book, of trying to have the lower schools furnish the technical elements of biology in preparation for higher courses. On the contrary, he will take the risk of later work if the child from the first is given the chance at nature itself which is every child's human right. To appreciate the book from the start one should read his articles in volumes 6 and 7 of the *Pedagogical Seminary* on the Foundations of Nature Study.

It is due Dr. Hodge and his book that his former declarations on nature study and criticisms of other methods be duly taken into account in estimating the book itself, but space permits only a brief statement of these as he has himself recently summarized the "Criteria of Nature Study."² The dangers of a plastic course in nature study and any successful course must be plastic to keep it "closely in touch with the

¹*Ped. Sem.*, Vol. VII, p. 100. Foundation of Nature Study, *Ped. Sem.*, Vols. VI and VII.

²The Criteria of Nature Study, New York Teacher's Monographs, March, 1902.

natural and spontaneous interests of both children and teacher," and must adapt itself so as "to open up avenues of interest in various directions which may appeal to all"—the dangers of such a course are (1) that the over-enthusiastic specialist will carry his technical university courses down into the grammar school, and (2) that the teacher who "has cultivated no wholesome nature interests" will be content to pursue what Dr. Hodge has characterized as the "knot-hole method" letting "a broom splint, a sliver of pine or a knot-hole fill in the time with a haphazard lesson." The long struggle of the race in the "ascent of man" persists in the author's mind as the fundamental criterion. The very plasticity here sought disallows the hereditarian dogma, and atrophy and dormancy follow our failure "to give the child his natural environment during the years of growth and plasticity." But so far from meaning by this that the child must be made to pass through all the race's stages of instinct and savagery, Dr. Hodge finds as the most vital criterion of all the desertion of such an artificial dogma for the firm ground which he finds in Dr. Brook's declaration that "life is response to the order of nature," each organism to make its own response in its own time. "A lowly organism responds to but a little of the order of nature." Man has neither attained to the highest manifestation of life, nor must he be ever practicing with bows and arrows to perfect his skill with the rifle. "The overwhelming fact is that life is cast into the midst of nature as the great matrix of education. . . . A system of elementary education that gives to the child in the place of nature an environment of symbolism . . . is a system that leaves out truly elementary education itself." Since "Life is knowledge in use," a fundamental criterion "is the relation of the lesson to the whole-souled, spontaneous activity of the child." Leave out of our nature study course any of our science which is not knowledge in use. Again, we must take account of human short cuts and "distinguish between the essential and fundamental and the merely trivial and temporary activities associated with human progress." The special and technical are matters of adult life, and we must leave them for later years. Moses has stated the problem in the large, to "subdue the earth, hold dominion over every living thing, make the world a paradise." This has been done in (1) the domestication of animals (nomadic life) and (2) the cultivation of plants, which is the great uplift of civilization, gives stable landhold with love of home, hence love of country—and hence also the foundations of communities, trade, commerce, art, literature, science, philosophy and religion. Thus it is "these fundamental currents of human life, as for the race, so for the child, that are the basal criteria of nature study."

In no other field have there been more blind guides stumbling with us into the ditch of strange formalisms. Nature study (much abused term), as the nearest thing of all to humanity itself, exemplifies most fully that strange perversity with which education has, in all civilized time, thought it its special duty to get hard and distant things through the human skull. As such it is the last subject to be freed from formalism, classificationism, sentimentalism, fadism and all the rest of the artificialities that seize upon every bit of nature and truth the moment it enters the schools. That Dr. Hodge has justified the criticisms he has made of other books upon nature study and fulfilled the promise of his carefully laid foundations the book itself attests on every page.

The subjects treated are the best index to the character of the book. After treating briefly the point of view and the values of nature study—the chapters are as follows: Children's Animals and Pets, Plan for

Insect Study, Insects of the Household, Lessons with Plants, Elementary Botany, Garden Studies, Home and School Gardens, Nature Study Property of Children, Garden Fruits, Propagation of Plants, Insects of the Garden, Beneficial Insects, The Honeybee, Insects Beneficial and Beautiful, Insectivorous Animals, The Common Toad, Common Frogs and Salamanders, Our Common Birds, The Bird Census and Food Chart, Practical Domestication of our Wild Birds, Taming and Feeding Birds, Elementary Forestry, Aquaria—their Construction and Management, Miscellaneous Animals, Flowerless Plants, Flowerless plants—moulds, mildews, yeast, bacteria, The Grade Plan. The book has a good index. Among the things we miss are gruesome skeletons and bones, charts of grasshoppers dissected into fragments meaningless except to a specialist in anatomy, lengthy accounts of things which should be found out by the pupils themselves, puerile questions—and most conspicuous of all by its absence is the strained sentimentalism which is no less nauseating to a normal child. If one fears that it lacks the poetry which is inseparable from nature he need look no further than the dedication, which is a poem of such beauty as is found on every page of the book, for every page but allows Nature to reflect the beauty which inheres in her truth. We find no more fine points of classification than the headings of the chapters indicate as necessary. Life, activity, what it does and how it does it, how we can help it do beneficent things or hinder its interference with human well being and happiness exhaust the field of nature and life at least as childhood is related to it, and there is no time for dissection or division into dead bits of head, thorax, abdomen, etc. If these divisions are needed they will appear in connection with life and activity and not as dead science of classification. How unfortunate we would be if we were obliged to designate each other as such and such a variety and species of the *genus homo sapiens*! It is only in school that we insist upon such absurdities.

What we find in place of these relics of scholasticism and ill-concealed simplifications of college science denominated "nature study" is certainly refreshing and full of hope. We find a running text every inch of it full of interest because full of things to do, and a text unbroken by anything less interesting than the text itself, and readable to the point of fascination, by teacher or pupil or anybody who has enough of the love of the true and the beautiful to value a suggestion as to where and how he may know them better. The two pictures "Good Samaritans" (p. 346), and "Watching a Brown Snake Shed its Skin" (p. 404), are worth buying the book to see, and their mention is no disparagement of the other instinct, artistic photographs and drawings with which the book is replete. The horse (p. 39) has fixed an image in my mind's eye, which despite the odiousness of comparisons I cannot help setting over against a drawing, in another nature study book, entitled "An Arabian Horse." A boy who knows live horses and can be made to believe that the noble companion of the Arab looks as much like a saw-horse padded to the proportions of a well fed porker as that picture represents him, can be safely fed on the dissecting-knife chips of that book.

It seems to be the fashion with the newer books on nature study to adapt their suggestions to the seasons as the chief formal division of their subject matter. The California boy or girl will suffer no confusion in the use of this book though made in New England; and certainly California school children need the relief which a naturalist like Dr. Hodge can give them, from the stuff they are fed in their State text-books by "specialists" (in job getting).

Another point of probable attack (for I take it he will be attacked

where his work differs from others) is the fact that Dr. Hodge has laid a stress upon human interests as of first rank, which will no doubt be decried as 'utilitarian.' We shall simply have to wait till scholasticism has given place to the inevitable "humanism" to come, when it will be no disgrace for any good thing to have had a use to humanity for its first and sufficient excuse for being.

R. C. BENTLEY.

A Short History of Germany, by ERNEST F. HENDERSON. Vol. I, pp. 517; Vol. II, pp. 471. The Macmillan Co., New York, 1902.

The first volume covers the period from 9 to 1648 A. D., and the second continues the story down to 1871. The work "is dedicated by gracious permission to his Royal Highness, Prince Henry, of Prussia, on occasion of his visit to America." Such a work has long been a desideratum not only as a work of general reference, but for college classes. "Germany stands in the center of Europe, and on her soil all the great international struggles have been fought." The writer dissents from those who recommend the history of France as the guiding thread through general European history, the chief factors of which are the papacy and the empire. The first was German from the ninth to the nineteenth century, and Luther was surely more important than the French reformers. Moreover, striking personalities and events from the days of Frederick the Great to William I stand out in bold relief. This work is well illustrated and contains clear and sufficient maps, references to authorities and indexes, and certainly fills a long felt want as a key for the student and as an authority for the general reader.

Animal Experimentation. A series of statements indicating its value to biological and medical science. Little, Brown & Co., Boston, 1902. pp. 177.

This tasteful volume consists of the statements of various remonstrants to proposed legislation to further restrict experimentation upon animals for medical and biological purposes in Massachusetts. They were called out in the legislative hearings upon this subject in the spring of 1901. It was a very happy thought to gather these statements of thirty prominent men who favor vivisection under proper restraints. The fullest statement is by Professor Ernst, who conducted the case in a far more dignified and effective way than the clever lawyer to whom the petitioners entrusted their side. Although some little anxiety was felt because this chronically recurring matter came last year before a new committee, the result showed that such solicitude was unnecessary, for the committee after careful investigation, visiting many laboratories for themselves, were unanimous in giving the petitioners leave to withdraw.

Schutze's Amusing Geography and System of Map-Drawing, by LENORE CONGDON SCHUTZE. The Whitaker and Ray Co., San Francisco, 1900. pp. 64.

"This is the shark that lived for years on waters dark," for Cuba is mnemonically represented by a shark. Then comes a turbaned head in the shape of Spain. "This is the wight that caused the shark to live for years on waters dark." Then comes a peacock, whose head is Maine, one foot Florida, and the other the delta of the Mississippi. "This is the bird that rose in its might and punished the wight that caused the shark to live for years on waters dark." This is the child history of the Spanish-American War.

Louisiana is a chair; Georgia, the head of George; Wisconsin is a badger; West Virginia, a vulture; Eastern Massachusetts, a hideous beldam shaking her long arm, which is Cape Cod; Florida is a net with

a handle; South America, a ghastly skull. All this helps children to draw and gives great interest in form. There is a great collection of geographical conundrums, puns, riddles, etc., with various memory songs.

This is certainly something new in geography and is ingenious. It is not intended to be a text-book, but only an accessory. As a geographical spice, we should think it very interesting. It is said that children cry for it, and if anything can enliven and enrich the dull work of drawing maps and awake an interest in form, it is certainly a Godsend. We heartily believe this book worthy of consideration and believe it will be helpful. The writer is a lady who has had the advantage of long European study and experience in teaching and lecturing.

The American Federal State, by ROSCOE LEWIS ASHLEY. The Macmillan Co., New York, 1902. pp. 599.

This civic text-book is intended not only to describe the organization and work of the different American governments, but to make prominent the relation of the citizens to the government and to each other. This seems best done from the standpoint of the State as an organized unit. The work is concise, yet complete. First the elements of politics are treated; then the historical period on English soil and in the colonial age; then the revolution, constitution, nationality, colonialism, democracy, slavery, and the new nation. Under the second part—government—the chief topics are—the general character of American federalism; the senate, house and their powers; the president and executive departments; the judiciary; the relations of the three; the States, their constitutions and government; phases of State activity; town and county government; municipality. In the third part—policies and problems—suffrage, party, constitutional, and legal rights, taxes, money, trade, industry, foreign affairs, colonies, and duties of citizenship are treated.

Protection of Native Races Against Intoxicants and Opium, Based on the Testimony of One Hundred Missionaries and Travellers, by DR. and MRS. WILBUR F. CRAFTS and MISSES MARY and MARGARET W. LEITCH. Fleming H. Revell Co., Chicago, 1900. pp. 287.

This great battle of conscience against commerce is well described in different countries by the many authors whose testimony is here classified. The book is made all the more interesting by many photographs of leading workers and authorities in various parts of the world. It is a most useful and timely book.

A Laboratory Manual of Physics, by HENRY CREW and ROBERT R. TATNALL. The Macmillan Co., New York, 1902. pp. 234.

The authors do not describe classic experiments, but seek to illustrate the first principles of physics in a simple way; to supplement some of the excellent text-books already in use; to reduce to a minimum the expenditure of energy in teaching; to give condensed laboratory directions, which are continuous and homogeneous; and to avoid excessive use of blanks. Like other books of the series, this book is based on McLellan and Dewey's *Psychology of Number*, and is designed for grammar grades. The basis of it is contained in the statement, "no number without measurement; no measurement without number," and from undefined whole to defined whole by analysis which gives objects or particulars, and by synthesis which gives the defined whole.

The Elements of Physical Chemistry, by HARRY C. JONES. The Macmillan Co., New York, 1902. pp. 565. Price, \$4.

This is a new science mainly developed within fifteen years. Although the older physical chemists are not neglected, the new are especially regarded. This work deals with the whole subject, old and new, although in an elementary way. It is designed to help students in their later college and early university work. It presupposes a general knowledge of both chemistry and physics. The distinctly new part of the science begins with chapter 5 on solution. Thermo- and electro-chemistry are given their true place. On the whole it is a well balanced work on a very important subject, with innumerable practical references which also reaches out to biology.

An Elementary Book on Electricity and Magnetism and Their Application, by DUGALD C. JACKSON and JOHN PRICE JACKSON. The Macmillan Co., New York, 1902. pp. 482.

While especially intended for an elementary text-book, this will interest all readers with a taste for science. The author's idea is that science is best taught in an atmosphere filled with every day facts and of sense. The language is plain and clear; there are 358 well chosen illustrations; not too much mathematics; and it seems in every way an admirable book.

Der Lehrgang des Schauspielers, von ERNST VON POSSART. W. Speemann, Stuttgart, 1901. pp. 82.

This lively and interesting pamphlet on a course of study for actors discusses the choice of the profession, the development of language, voice, accent, etc., the technique of movement and mimesis, with sections on masks, painting the face, perukes, beard, nose transformations, the use of rice meal, and hygiene and dietetics.

Les trente-six situations dramatiques, par GEORGES POLTI. Paris, 1895. pp. 200.

This author believes that he has reduced all possible dramatic situations to thirty, each of which is characterized in a chapter, which certainly shows amazingly wide knowledge of the dramatic art. This was the principle long since suggested by Gozzi in a work which seems to have met with much approval by Goethe.

The English Chronicle Play, by FELIX E. SCHELLING. The Macmillan Co., New York, 1902. pp. 310.

The forerunners of the Chronicle Play, its growth, Shakespeare's predecessors, Shakespeare, popular playwrights, the legendary and biographical plays, plays on Henry VIII, and later historical dramas—are the chief topics. A table of extant plays, list of plays on English historical subjects, and an index are appended. It is an admirable attempt to tell the history of "one of the many and various strands which, twisted and interwoven, form the brilliant and heterogeneous Elizabethan drama."

Erlebtes und Erstrebtes, von CARL GEGENBAUR. W. Engelman, Leipzig, 1901. pp. 114.

This is an extremely interesting account of the childhood, youth and university life of an eminent scientist. Very little is said after the year 1856, when the writer was settled to his first university work in Jena. It is written with great frankness, and the author's comments upon the experiences and education of his early life are of great interest.

The Very First Lessons at the Piano, by MRS. CROSBY ADAMS. Clayton F. Summy Co., Chicago. pp. 30.

The author of this collection of little melodies with and without words seeks to awaken interest in pupils in their music from the outset. It is preceded by a careful introduction setting forth the main features of the author's interesting theory and practice. Those who insist on the old-fashioned drill methods and disregard interest will not like it, but we believe the author's idea is in the main right, although we cannot but wonder whether the work is not made a little too easy at the outset.

Studies in Education. Edited by Earl Barnes. Philadelphia, March, 1902. Vol. II, No. 1.

Teachers will welcome with great pleasure the promise of another series of studies in education by Earl Barnes. The first number, after a brief introduction, contains five articles as follows: The development of children's political ideas; political ideas of American children; children's stories and poetry: I, the mere rhyme; studies on children's drawings: I, the Boer War; type study on ideals: I, the problem and work already done.

Augsburg's Drawing Book I, by D. R. AUGSBURG. Educational Publishing Co., Boston, 1901. pp. 188.

This is number 1 of a three book system to teach form and color. The first is the teacher's handbook; the second is a text-book for the pupil; and the third contains short courses in brush, wash, water color, and pen drawing, chalk modeling, the human head and figure, decorative designs, and mechanical drawing.

Holman Hunt, by GEORGE C. WILLIAMSON. Bell's Miniature Series of Painters. George Bell and Sons, London, 1902. pp. 64.

This tasteful and illustrated little work is a judicious and interesting compendium of the great painter's life, chief characteristics and his principle productions, including the missing pictures together with a list of the important books and articles upon him and his work.

The Leopard's Spots. A Romance of the White Man's Burden—1865-1900. By THOMAS DIXON, JR. Doubleday, Page and Co., New York, 1902. pp. 465.

Although this is a very interesting novel, it is at the same time an historical study of the race question on which the author has spent twenty years of thought. Frederic Harrison recently said that this is the one great problem which shadows the future of America. It is a good story with a good moral.

Pestalozzi et l'Éducation Élémentaire, par GABRIEL COMPAYRÉ. Paul Delaplane, Paris. pp. 126.

We have here a very convenient handbook on Pestalozzi's life, his writings, and his influence. Rousseau and Spencer have already been treated in this series, and Macé, Horace Mann, Condorcet and Rollin are nearly ready, and fifteen more, ending with Tolstoi, are to follow.

The Grading of Schools, Including a Full Explanation of a Rational Plan of Grading, by WILLIAM J. SHEARER. The H. P. Smith Publishing Co., New York, 1899. pp. 220.

This is the third edition of a convenient and useful work by a writer who has a just sense of the importance of a better system. The preface states that it is the first book upon this phase of school organization. It is the product of ten years of careful study.

THE PEDAGOGICAL SEMINARY.

Founded and Edited by G. STANLEY HALL.

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EDITORIAL.

In the first article Dr. Wylie has gathered from the literature and from his own personal study and observation data which make a comprehensive introduction to the whole subject of the psychology and the education of the blind, with the important literature. The training of defectives, now so important a part of pedagogy, is in some respects more interesting and scientific, because requiring a more highly specialized knowledge than is the training of normal children.

Dr. Chamberlain's vigorous and somewhat revolutionary views on the teaching of English are at least along lines which many are now thinking. Whether these new conceptions to which this author gives such original expression will ever have sufficient strength to reform our present methods is uncertain.

Mr. Dana is one of the most progressive and liberal of all American librarians. No one has so fully realized that books are to be used first and chiefly, and that their preservation and safe guarding is always secondary and subordinate. His magnificent work in Springfield almost marked a new epoch in making the resources of libraries more accessible to those who use them.

The editor hastens to retract and modify the opinion expressed in his article on normal schools, that it would be hard to take the statistics of the number of normal teachers holding degrees. This, it appears, has been done for 111 normal

teachers by the State Board of Education. Of this number 51 are men, 22 of whom are college graduates; and 60 are women, of whom 9 are college graduates. Of the total of 31 college graduates on the normal staffs in Massachusetts, 10 hold the degree of A. M. and 4 of Ph. D. It is perhaps on the whole more surprising that so small a per cent. of the women teachers in normal schools hold degrees. These figures are extremely significant. It would be no less so if we could learn how many of all the normal teachers in this State are graduates of normal schools, and of these how many also have completed a high school course, and how many have only a grammar school training supplemented by that of a normal school.

In the second address of the editor he has sought to suggest points of *rapprochement* between physics and manual training which, in his opinion, would be helpful to both.

Mr. Ellis has contributed another suggestive and interesting parallelism between the growth of the individual child and the race in demonstrating, on the basis of many instances, the strong propensity of the modern child to ascribe psychic states, often very complex, to inanimate things.

Mr. Bonser has applied the questionnaire method to analyze the propensity of children to form strong individual attachments to each other, and has considered especially the age of such attachments, the reasons, frequency, quarrels, likes and dispositions, duration of friendship, pupils without chums, and has drawn a few interesting and important conclusions.

The last article is a plain story of what has been accomplished by a single city grammar master in the way of making the home a center of improvement for parents and community, and widening its sphere from the mere hearing of lessons to making contact with life.

ON THE PSYCHOLOGY AND PEDAGOGY OF THE BLIND.

By ARTHUR R. T. WYLIE, Fellow in Clark University.

HISTORY OF THE BLIND.

The history of the blind before 1784 is one of "legends, suffering and individual gropings." Since that time we have the invention and application of means and methods of education for them.

History has very little to tell us of these unfortunates except now and then to record the name of some blind genius who aroused the astonishment of his contemporaries. The earliest ones of which we hear are the blind theologian Didymus of Alexandria and the poets Bashar who flourished in the 7th century and Aboul-Ola-Hamid-Ben-Soliman. Thus the Orient gives us the first records.

Judging by their medical treatises the blind must have been numerous during Roman times but no methods of instruction have come down to us. Diogenes Laertius relates that several philosophers deprived themselves of sight in order to meditate more easily. Diodorus was a philosopher and musician and taught geometry and was noted for his clear demonstrations. Aufidius wrote a Greek history. Didymus, the teacher of St. Jerome, lost sight at five years and became a noted theologian and mathematician as well as a professor at Alexandria. His most noted work is a "Treatise on the Holy Ghost."

The first charitable institution of which we have any record was a hospital established by St. Basile at Cesarea in Cappadocia in the 4th century. In the following century St. Limnee organized a refuge at Syr in Syria, and about 630 a typhlocominus was established at Jerusalem. St. Bernard, Bishop of Mans, established an institution for the blind in the 7th century.

But these leadings were not followed up and the blind were left to become beggars at churches and by the waysides, which seems to have been the chief way for caring for these unfortunates until very recent times.

In 1260 Louis IX founded the Hospice des Quinze-Vingts, a retreat for three hundred blind paupers, hence the name.

However they were often subjected to inhuman treatment from the rough manners of the times. We are told that in 1425 Charles VII placed four blind men in full armor and armed with clubs in a fenced inclosure with a large hog which was to be given to the one who would kill it. In attempting to do this they were said to have given each other such blows but that for the armor they would have been killed. The court of Charles is reported to have been highly amused by this spectacle.

However, in Japan the blind were more highly esteemed, for Charlevoix in his *History of Japan* tells us that the history and annals of the empire were confided to the memory of the blind who communicated their knowledge to the following generation and thus formed an unbroken tradition which no one would contradict. They had their Academy where they were taught, where exercises were given to cultivate the memory and from which they received degrees. They also turned portions of the history into verse and adorned it with music. They had their special officers and received great "consideration."

Nicaise, of Malines, blind from the age of three, taught canon and civil law at the University of Cologne, quoting long passages from memory; he became a priest and preached the remainder of his life, dying in 1492. James Schegkins, who died in 1587, taught philosophy and medicine at Tübingen for thirteen years. To the oculist that offered him aid when he lost his sight he replied that "he had seen many things in life he would rather have not seen, and would even have wished on some occasions that he had been deaf." Asconius wrote a treatise on grammar. The 14th century produced the blind poet Loedini in Italy, the philosopher Ferdinandus de Bruges, Bruman the musician, and Herman Correntier famous for learning. In the next century we find Commenius the mathematician, and the poet Malaval in France, in Germany, Professor Schoenberg. In the 18th century there flourished Moyses the chemist, Stanley the musician, Blacklock the poet in England, and Kleinhaus the sculptor, and Kennedi and Koeperli the artisans in Germany. These instances simply served to show what great minds could do even under great difficulties and they would indicate that possibly lesser minds might be educated if the proper means were used to this end, but they gave no indication as to what these should be. However, Jerome Cardan an Italian physician, who flourished during the middle of the 16th century, had conceived the idea that the blind could be taught to read and write by means of touch and cited Erasmus as supporting the view.¹ And in 1575, we find Francesco

¹ There is no reference to this in the works of Erasmus.

Lucas in Spain, and Rampazzetto in Italy, had made use of large concave letters cut in wood, both singly and in groups, for instruction of the blind.

In 1646 appeared the first book which called attention to the condition of the blind. It was published in Italian and French under the title "*L'Aveugle affligé et consolé.*" In 1670 appeared a book on the instruction of the blind by Lana Terzi, a Jesuit.

Six years after this Mlle. Elizabeth Waldkirch, of Geneva, was taught to read by Jacques Bernoulli, a Swiss savant, but the means of her instruction were not made known.

Bishop Burnet, of Salisbury, tells us in his "*Journeys in Switzerland*" of Mlle. Walkier, of Shaffhausen, who had lost her sight when one year old but "spoke five languages, was a theologian, a philosopher, and a good musician. She learned to write by means of hollow characters cut in wood which she passed over with a sharp pointed iron. Afterwards she made use of a pencil and when the bishop saw her, in 1685, she wrote rapidly and correctly."

In 1690 appeared Locke's *Essay on Human Understanding* in which he attempted to deduce all our knowledge from experience. Consequently he was much interested in a question that his friend Molineaux proposed, as to whether a man born blind if made to see on becoming an adult could distinguish by sight a cube from a sphere if both were of the same metal and color. In discussing the subject that judgment often changes our "ideas of sensation," Locke takes up this question and agrees with Molineaux in answering it in the negative. "For," he says, "although he has obtained the experience of how a globe, how a cube affects his touch; yet he has not yet obtained the experience that what affects his touch so and so must affect his sight so and so."

In 1703 Leibnitz took up the question but came to different conclusions from those of Locke.

A few years after this Saunderson, the blind mathematician, was exciting the wonder of England. Having pursued classical studies with success he was drawn to mathematics. He was obliged from lack of means to give lectures which we are told were well attended. He published an *Elements of Algebra* which is said to have been "full of singular demonstrations." On the recommendation of Sir Isaac Newton he was appointed to the professorship at Cambridge which Newton himself had vacated only a short time before. Here he expounded the works of Newton on light and optics with great success, the clearness of his demonstrations exciting the surprise and admiration of his hearers. He was given the degree of Doctor of Laws by the order of George II.

We are told that his morals did not correspond with his talents, and although his excesses tarnished his great name yet his fame lived for a century after him. He died in 1739 at the age of 56. His chief interest for us lies in his invention of a calculating board. This was made of wood a foot square. It was divided into little squares by means of parallel horizontal and vertical grooves, thus giving both vertical and horizontal columns. In the center of each little square was a hole, likewise at each corner and in the middle of each side. He provided himself with two sizes of pins which when properly placed in these holes represented figures, each square standing for one digit. Thus a big pin in the center of the square meant zero while a small pin meant one. A large pin in the center and a small one directly above meant two, or if in the superior right hand corner three, etc. By means of this he was able to work out all of his calculations. The same board with the addition of silk threads he used for geometrical demonstration. In 1747 a biography of Saunderson was published in Dublin by his pupil, Wm. Hinchleff, which contained a full description of the appliances used by this blind mathematician. This book we are told "was most eagerly read in France."¹

The answer of Locke to the question of Molineaux not long afterward received experimental confirmation. In 1728 Wm. Chesselden published in the Philosophical Transactions an account of a case that he had couched for congenital cataract. And although the patient had been able to distinguish day and night and see color in a very strong light yet he did not know color after the operation. "He did not know the shape of anything nor any one thing from another however different in shape or magnitude." And it was only after long experience that he could distinguish by sight his old friends the cat and dog.²

Condillac in his "*Traité des Sensations et des Animaux*," where he treats of his famous statue, takes up the question of Molineaux and Locke and calls attention to the fact the specification of the size and color of the objects was unnecessary since it would be a contradiction to think that he could judge of size and distance and not of form. He also gave a full discussion of the observations and results of the Chesselden case.³

Condillac was a follower of Locke but in his *Traité des Sensations* he went beyond his master and made sensation the sole origin of human knowledge. Voltaire called him the "great philosopher." His work became immensely popular and was taught in the public schools and academies of France, so that

¹ Morley says that such a book does not nor ever has existed.

² Phil. Trans., April, May, June, 1728.

³ *Oeuvres Completes*. T. III, p. 233. Paris, 1821.

the philosophy of Condillac was the philosophy of France during the Revolution and under the Empire.

The Abbé Deschamps in a work on the education of the deaf also outlined a method of teaching the blind to read and write.

In 1738 Voltaire published a book in which he popularized the work of Newton, and also gave a statement of Berkeley's theory of vision and a discussion of the Chesselden case. Ten years later Réaumur couched a girl for congenital cataracts. Diderot sought admission to this operation but was refused. His disappointment was not great, however, for on a little reflection he decided that only very meager results could be gained from questioning the patient for she would not have sufficient intelligence and skill in observation to make her answers valuable. Hence, he concludes that more could be gained by questioning the intelligent blind. As a result of his meditation on this case he published in 1749 his "*Lettre sur les aveugles à l'usage de ceux qui voient.*" The aim of this Letter was to show "that all knowledge is relative to intelligence; that thought is not the measure of existence, nor the conceivableness of a proposition the test of its truth, and that our experience is not the limit of the possibility of things." Having thus grasped the doctrine of relativity he used it against the standard organization of the time which "made anthropomorphism and the absolute the very base and spring alike of individual and social life."

The Letter is an inquiry of how far the loss of one sense would involve a corresponding modification of the ordinary notions. Diderot paid a visit to Lenôtre du Puisseau the most famous blind-man of the time. He was a son of a professor of the University of Paris and had himself taken courses in chemistry and botany. Afterward he went to Puisseau where he established a distillery and went yearly to Paris to dispose of the products. He slept during the day and worked at night "because he was not then disturbed by anybody." Diderot asked him his idea of an eye and of a mirror. He replied that he thought an eye was "an organ upon which the air produces the same effect as the staff on the hand" and that a mirror was a "machine by which objects are placed in relief outside of themselves." Diderot shows how these ideas are reached by applying the known to the unknown and then asks the question of how many philosophers do the same, with the inference that their results are about as valuable.

He finds that the blind have a greater memory for sound than seeing people and that they notice differences in sound that are neglected by the seeing. Lenôtre told him that he would think seeing people of superior intelligence if experience had not taught him better. On asking him if he would not be glad to

have his sight, he received the reply that "were it not for the mere gratification of curiosity, I think I should do as well to wish for long arms. It seems to me that my hands would inform me better of what is going on in the moon than your eyes and telescopes; and then the eyes lose the power of vision more readily than the hands that of feeling. It would be better to perfect the organ which I have than to bestow on me that which I have not."

In return Lenôtre asked of Diderot some rather strange questions on color, glass, etc., and if the naturalists were the only persons who could see with the microscope and "if the machine which magnified objects was greater than that which diminished them, if that which brought them nearer was shorter than that which removed them to a distance."

Diderot, also, found that the blind have a very slight sense of shame. For Lenôtre clothes were simply to protect the body from the cold, otherwise he had as lief be without them. This leads Diderot to reflect on the relation of sense to morality and that the morality of the blind and deaf both differ from each other and from that of the seeing. He concludes that the acquiring of another sense by us would make as great difference in our moral ideas as the difference between the ideas we now have and those of the blind.

The remainder of the Letter is taken up with a discussion of why a blind man should believe in God. This was a part of the book in which the people were interested and which gained for it its popularity. In discussing the argument from authority Diderot makes use of notions that we now know under the terms, animal variation, adaptation and the struggle for existence.

In another connection he shows that we have signs for the eye and for the ear but none for touch. This, he thinks, is the reason why blind-deaf-mutes are imbeciles and suggests that if a way of communication with them could be devised they could be lead to form ideas, a feat which was accomplished for the first time nearly one hundred years later by Dr. Howe with Laura Bridgman.

For publishing this Letter Diderot was imprisoned for three months in the Vincennes by Louis XV, "nominally because the book was irreligious but really because he had given offense to D'Argenson's mistress by hinting that she might be very handsome but that her judgment on a scientific experiment was of no value."¹ This act aroused great popular indignation and made him the hero of the hour.

While in prison Diderot was visited by Rousseau. Rousseau

¹ Morley: Rousseau. II, p. 55.

is reported to have actively aided the movement in favor of the blind and even to have suggested a system of embossed printing. This view, however, appears to be a mistake, since he nowhere makes mention of the subject in his works. But he no doubt lent his influence indirectly, for he was much interested in the education of the deaf and got from it many suggestions for his *Émile*.

The individual initiative which was necessary in order that this experience should be of benefit for the whole class of the blind, was aroused seemingly by a matter of accident. In 1783 a restaurant keeper of Paris, in order to stimulate business, procured the services of eight or ten blind men. These he furnished with musical instruments, racks, music books. These men with large leather spectacles on their noses, apparently looking at their music books, regaled the patrons of this café, we are told, with the "most discordant sounds." The venture was immensely successful and the place was known for years afterward as the *Café des Aveugles*.

One of the spectators at one of these performances, instead of laughing and jeering with the rest, was affected in a much different manner and immediately conceived the possibility of realizing for the blind what had been done for the deaf. He says:

"A very different sentiment from that of delight possessed our soul and we conceived at that very instant the possibility of turning to the advantage of those unfortunate people the means of which they had only an apparent and ridiculous enjoyment. Do not the blind, said we to ourselves, distinguish objects by the diversity of their form? Are they mistaken in the value of a piece of money? Why cannot they distinguish a C from a G in music, or an a from an f in orthography, if these characters should be rendered palpable to the touch? While we were reflecting on the usefulness of such an undertaking, another observation struck us. A young child full of intelligence but deprived of sight listened with profit to the correction of his brother's classical exercises. He often besought him to read his elementary books to him. He, however, more occupied with his amusements, turned a deaf ear to the solicitations of his unfortunate brother who was soon carried off by a cruel disease.

"These different examples soon convinced us how precious it would be for the blind to possess the means of extending their knowledge without being obliged to wait for or sometimes even in vain to demand the assistance of those who see."

This was Valentin Haüy the "father of the blind." He now made a study of the methods and appliances that the blind who had become famous, had made use of in their work and education. He became acquainted with the calculating tablet of

Saunderson. He learned of the raised letters used by the blind man of Puiseaux and Mlle. de Salignac and of the tangible musical characters invented by Lamoroux.

While he was considering these matters a blind pianiste, Mlle. Maria Theresa Von Paradis, of Vienna, came to Paris where she achieved one of the greatest successes of the season. She had been making a concert tour of the Continent and England and everywhere had been received with great enthusiasm but she received her greatest triumph in Paris. Haüy soon made her acquaintance and was shown the appliances she had used in her education. She was the god child of the Empress Maria Theresa and her parents possessed both rank and wealth so no expense was spared in her education. The blind Weissemberg, who had made use of signs in relief and maps made of strings, beads and various glazed sands in his own education, was her tutor. She "learned to spell with letters cut out of pasteboard and to read words pricked upon cards with pins." Baron von Kempelen, the inventor of the speaking automaton and the mechanical chess player, was also her teacher and invented for her a printing press which printed in ink and by means of which she carried on her correspondence. She also had a "large cushion into which she stuck pins to form notes and letters."

On the basis of these observations Haüy developed a scheme for the education of the blind. And in order to see if his ideas were practical he hired a blind beggar, whom he found at the door of the chapel Bonne Nouvelle, to become his pupil. The result was very successful. A paper read by him and an exhibition of the work of his pupil before the Royal Academy of Science created great enthusiasm. Twelve pensionnaires of the Philanthropic Society were turned over to him and with these and his first pupil, Lesueur, he started his first school for the blind in a small house in the Rue Coquillière.

Here the art of embossing books was invented. This again seems to have been a matter of accident as M. Guillioud one of his pupils relates.

"Lesueur was sent one day to his master's desk for some article, and passing his fingers over the papers, they came in contact with the back of a printed note, which, having received an unusually strong impression, exhibited the letters in relief on the reverse. He distinguished an o, and brought the paper to his teacher to show him that he could do so. Haüy at once perceived the importance of the discovery, and testing it further by writing upon paper with a sharp point, and reversing it, found that Lesueur read it with great facility."

And by making a strong impression of the type on tough paper the invention was completed.

But this, like all other important inventions, had been fore-

shadowed. Letters cut in wood, as we have seen, had early been used for the blind in Italy and Spain. But these were concave and were useless. In 1640 Pierre Moreau, a writing teacher of Paris, had made use of raised letters cast in lead for the blind but the invention came to naught. And by means of some similar device Archbishop Usher had taught his blind aunts to read.

In 1785 the Commission of the Royal Academy presented their report on the work of Haüy and he immediately became the lion of the hour. Musicians and actors gave recitals for the benefit of his pupils and funds came in from all directions.

Haüy and his pupils, the next year, were given an audience by Louis XVI. Haüy became a favorite of the king and was accorded various honors.

It was about this time that he published his *Essai sur l'éducation des aveugles*. It was printed by the pupils of his school.

The revolution was now approaching and the school was soon in sore need on account of funds. Haüy used up his own little fortune and then tried to eke out an existence by printing hand-bills.

In 1791 the school was united with that for the deaf mutes but this only led to trouble and they were soon afterward separated. Haüy continued at the head of the school for seven years longer but it continued to decline, partly on account of the lack of executive ability on the part of Haüy and partly to his mistake of allowing his pupils to marry, which he permitted from a desire to see them happy. In 1801 the school was united by the government with the Hospice des Quinze-Vingts, an institution for blind beggars. This was more than Haüy could stand so he resigned and kept a private school for five years. He then went to Russia on invitation of the Czar and started a school for the blind. After a few years he left and went to Berlin where he was also instrumental in founding another school but he soon left and returned to Paris where he lived in retirement until his death, in 1822.

For thirteen years after Haüy left Bertrand had charge of the school in Paris. He proved to be both ignorant and inefficient. On his death, in 1814, Dr. Guillié took charge and making some much needed reforms established the school on a better basis. He succeeded in interesting musicians in the school and a number of veritable artists were trained there during his administration. He was, however, unscrupulous and vain, running the school simply to make a show. On account of popular indignation he was compelled to retire in 1821 and Dr. Pignier succeeded him. He developed the art of piano tuning as an employment for the blind. Being of a religious nature he directed the attention of the blind to church music and the organ

and with great success. It was estimated that in 1882 there were over 200 blind organists in France. The school was reorganized in 1840 and has been doing excellent service ever since.

The work of Haüy soon bore fruit in other lands. In 1791 an institution was established at Liverpool upon a private foundation to teach blind children trades, to sing in church, and to play the organ.

Dr. Blacklock, the blind poet of Edinburg, became interested in the work of Haüy and translated his *Essai*. He interested David Miller in the work, who after the death of Blacklock, succeeded in interesting others in the project of founding a school and one was started in 1793. Other institutions were soon established in different towns in England.

Dr. Klein established an institution in Vienna, in 1804, and schools for the blind were soon founded in Berlin, Amsterdam, Prague, Dresden and Copenhagen.

Dr. John D. Fisher while pursuing medical studies in Paris frequently visited the institution for the blind with the idea of starting a similar institution in this country. On his return, in 1826, he succeeded in interesting others in the project and a corporation was soon formed and a little aid was procured from the State. He also succeeded in interesting Dr. Samuel G. Howe in the work and he was induced to become the superintendent of the school. Dr. Howe was sent to Europe to study methods and to procure apparatus and teachers. He returned in 1832, bringing with him two teachers and opened a school in his father's house with six "blind persons from different parts of the State, varying from six to twenty years." His work was successful. Funds were contributed, Col. Perkins gave his house and grounds to the school, and the various legislatures of the New England States were induced to make appropriations for the education of their blind children in this school. Thus originated what is now known as the Perkins Institution and Massachusetts School for the Blind.

Dr. Howe did not restrict his efforts to his own institution for he said: "I am very desirous of seeing ample provision made in every part of my country for the education of the blind and I doubt not that I shall be gratified." He gave addresses in many cities of this country and of Canada. And he and three of his pupils appeared before the legislatures of Ohio, Virginia, South Carolina and Kentucky and so impressed were they that they immediately made some provision for the education of the blind in their respective States.

However, the second institution to be established in point of time was in New York in 1833, Pennsylvania followed in the same year, Ohio in 1837, Virginia in 1838 and Kentucky in

1843. The other States rapidly took up the work so that there are now 36 schools with 393 instructors (137 men and 236 women) and 3,665 pupils (1,898 boys and 1,767 girls). In 1899 there were 107 graduates. The value of the grounds and buildings is \$6,334,307, and of the scientific apparatus, \$100,610. The current expense is \$743,119.¹

CAUSES AND STATISTICS OF BLINDNESS.

The census returns among other data concerning the blind have given statistics concerning the causes of blindness. But these returns, from the nature of the case, are not sufficiently accurate to furnish valuable results. The cases that have been accurately observed for this purpose are relatively few and have been observed by Magnus in Germany, Trousseau in France, and Oppenheimer in the United States.

In regard to the anatomical seat of blindness, Magnus found in 1,037 cases the lesion to be situated, in the order of frequency, in the optic nerve, uveal tract, conjunctiva, retina and cornea.

In studying the causes of blindness Magnus groups the 2,528 cases of blindness of both eyes that he reports under these heads: congenital, idiopathic diseases of the eye, traumatic, and general diseases. Grouping the cases reported by Trousseau and Oppenheimer in the same way we have:

Observer.	No. of cases	Congenital.	Idiopathic Diseases.	Traumatism.	General Diseases.
Magnus	2,528	3.84%	67.08%	10.76%	18.30%
Trousseau	625	3.04%	57.12%	16.32%	23.52%
Oppenheimer	572	3.84%	48.08%	28.67%	19.41%
	3,725	3.57%	57.43%	18.58%	20.41%

The nationalities show some differences here, thus the United States leads in the number of cases due to traumatism while Germany and France exceed in the number of cases due to idiopathic diseases of the eye.

Congenital blindness is found in 3.57% of all cases. The United States Census gives a much higher figure, 8.46%. The most common conditions found in this group are cataract, syphilis, atrophy of the optic nerve and retinitis pigmentosa. Heredity also seems to play a part here, for cataract, syphilis, various malformations and retinitis pigmentosa appear to be transmitted either directly or transformed. Consanguinity only enters as a cause in combining the hereditary tendencies of the parents.

In 57.43% of all cases, blindness is due to idiopathic diseases of the eye. Of these, ophthalmia neonatorum is the most

¹For this section the author is much indebted to Prof. Anagnos's Education of the Blind.

common. It is an infectious disease and is due to a specific germ *micrococcus gonococcus* and is transmitted from the maternal passages to the eyes of the infant at birth. This disease next to atrophy of the optic nerve is the most common cause of blindness. It has been estimated that it occurs in 30% of all cases in the United States. It is, however, amenable to treatment if taken in time, and Glascott has estimated that in nine-tenths of these cases blindness could have been prevented. On account of this, Germany and nine States in this country have made special laws concerning it. In fact, from one hospital in Germany, the Leipzig Lying-in-Hospital, it has practically been eradicated by proper antiseptic measures. The other more common diseases of this group are diseases of the cornea, uveal tract, detachment of the the retina from a high degree of myopia, glaucoma and idiopathic atrophy of the optic nerve.

Blindness from traumatism is found in 18.58% of all cases. It is especially common in the United States. Oppenheimer found it in 28.67% of his cases, being much greater among the men than among the women. As we would expect this cause figures most prominently in the active period of life but it is also frequently found operative in the first five years of life, the child most often receiving injury to his eyes from playthings. Cocius found the trades in which injuries to the eyes were most common to be (except miners) locksmiths, handcraftsmen, masons, smiths, and machinists. The eyes could be protected by spectacles or suitable guards but the men are averse to wearing them. It is estimated that one-half of the persons who lose one eye also lose the other one from sympathetic inflammation.

General diseases of the body caused blindness in 20.41% of the cases. Here disease of the brain, spinal cord and membranes are the most common of the organic diseases. However, the acute infectious diseases were found by Magnus to be the cause of blindness in 24.8% of his cases. The chief of these were small pox (12.10%), typhoid fever (5.18%), measles (3.46%), and scarlet fever (2.81%). Syphilis, although causing many eye affections, rarely causes blindness. Various poisons as alcohol, tobacco, lead and mercury, also figure sometimes as the cause of blindness.

Occupation has an influence on eye diseases, particularly those occupations in which the work is held close to the eyes and are thus conducive to myopia. While myopia, in the great majority of cases, is stationary, yet in a few cases it is progressive and may end in blindness from detachment of the retina. A large number, although not totally blind, yet are incapable of work.

A number of studies have been made concerning the preven-

tion of blindness. Cohn concluded that one-third of all cases were avoidable. Durr and Steffer and Rössler came to the conclusion that 40% of the cases that they studied were avoidable. Dr. Hays, making a summary of the data on this subject, found that 27.89% were unavoidable, 38.75% were possibly avoidable and 33.35% were certainly avoidable. Regarding one-third of the cases in which avoidability was uncertain as avoidable, and this he thinks is a conservative estimate, he finds that blindness could have been prevented in 46.27% of the cases. Cohn, from a study of the record of 70,174 cases of the Wiesbaden clinic, in 1887, concluded that 39.22% were avoidable.

From a consideration of these figures and the progress of medicine in recent years which has given us antiseptics and the control in a great measure of the ravages of the infectious diseases, of which we might instance small pox, we would expect to find blindness decreasing. And such is the case. In 1880 there were in the United States 976 blind to the million population, in 1890 there were only 880. In England the number has decreased from 1,021 to the million in 1851, to 809 in 1891. Scotland and Ireland show a similar decrease, as also Prussia, Saxony, Holland, Austria and Italy. This decrease is explained as directly due to better treatment of ophthalmia, diminution of small pox and better protection in shops and factories. There are some trades probably in which the number has increased as glass blowers and iron puddlers.

The greater part of the diseases and conditions which we have noted as causes of blindness are of peripheral origin as cataract, syphilis, atrophy of the optic nerve, diseases of the cornea and uveal tract, traumatism, etc. However, there are a number which arise from central conditions or are indicative of some disturbance there as malformations, retinitis pigmentosa, atrophy of the optic nerve, and diseases of the meninges, brain and cord. Where this latter group occurs there is great probability of mental defect. In fact we find the percentage of mental defect much greater among the blind than the seeing. Of 130 pupils registered in one of the schools, 11 or 8.4% were thought to be non-self-supporting even with sight and "as many more might be put in the doubtful list." Counting one-half of these as certain this would give us nearly 13% as mentally defective. This is shown to be near the truth since the history of our institutions shows that 90% of the pupils may be rendered self-supporting. So probably 10% could be regarded as a fair estimate of mental deficiency among the blind. Among the general population the ratio is only 0.2%.¹

¹32nd Report of the N. Y. State School for the Blind.

In 1876 Geo. Meyer estimated that there were 180,537 blind persons in the world, or one to 1,154 inhabitants. The number of blind in census reports is generally underestimated. After a careful examination of three counties in Scotland it was estimated that the census returns were 15.5% too low. The number of blind in a country varies according to occupation, climate and other conditions. The number of blind per million of inhabitants is as follows:—

Holland (1889),	445	Germany,	870
Canada,	669	France (1883),	947
Scotland (1891),	698	Spain (1860),	1,109
Italy (1881),	761	Russia,	about 2,000
United States (1890),	808	Portugal,	2,190
England and Wales,	809	Finland,	2,226
Sweden (1880),	816	Iceland,	3,400

Thus the United States stands below the average. In 1890 there were in the United States 50,568 persons blind in both eyes. Of these, 7,217 were colored or 945 per million, the proportion being greater among the colored race. The proportion is also higher among the foreign born, being 992 per million.

The proportion of blindness varies according to age. If a curve is plotted it is found that it rises rapidly to twenty, is level between twenty and thirty, then rises slowly to forty-five and then rapidly to seventy-five.

Of the 50,568 blind in the United States, 4,267 or 8.4% were congenital cases. And although the proportion of blind steadily increases with age yet the ratio of congenital blind remains constant to sixty-five years.

The number of blind within the school age, or between five and twenty years, was 5,708 and of these 1,105 or 19.36% were in school.¹

Climate seems to stand in some relation with the causes of blindness. This fact led Zeune to formulate the law that the proportion of blind gradually increases as we go from the high latitudes to the equator. The law contains a general truth but there are many exceptions. Coast regions have a larger proportion of blind than the high inland regions. But probably the hygienic and social conditions are determining features here. Zeune's law holds for the north, middle and southern thirds of the United States, but there is also a decrease in the proportion of blind as we go West. The States showing the greatest proportion are widely distributed and are New Mexico, Vermont, Kentucky, Virginia, Tennessee, Arkansas and Maine.

¹ Hence the passage of a compulsory education law has been urged in several States.

The Census Report says that these differences "are in part due to differences in the proportion of persons of advanced age in the population, in part to pernicious epidemics of eruptive fevers in certain localities and in part, perhaps, to heredity in certain families."

The blind, contrary to the rest of the population, show no tendency to congregate in cities.

According to Magnus, the period of life in which there is the greatest danger of loss of vision is from one to five years; next comes the period from fifty to sixty years. In the period from five to twenty years the danger is smallest, but it gradually increases from twenty to fifty years. Traumatism enters largely as a cause in the first period and during adult life.

Blindness is more common among men than among women, thus one among every 1,142 men is blind and one among every 1,359 women. Of the congenital blind the proportion of men to women is 550 to 450. Thus the proportion of blind among women is below the average of the world.¹

PSYCHOLOGY OF THE BLIND.

"Blindness is an incurable total loss of sight." Thus it has been defined but practically all are blind whose vision is so poor that they cannot work at occupations requiring the use of eyes.

The eyes of the normal child are sensitive to light on the first day. But blindness, probably, cannot be recognized earlier than the third or fourth day. The presence of vision is best shown by reflex to light stimulation. This can be tested by flashing light in the eyes but a better test is to call out the reflex by thrusting the hand toward the eyes. The diagnosis is not made sure, however, until the child fails to recognize the mother. The blind child comes to recognize the mother slowly and by the voice. And as mothers are always the last to recognize defect in their own children they frequently wait weeks for this recognition.

As the blind child grows, the physical defects are soon doubled and the moral effects are as profound although less apparent.

The effect of the loss of visual sensations is very great. More sensations are received from the eye than from any other sense organ. The mind of the young child is a veritable *tabula rasa*. Hence the vacuity of mind that the blind child instinctively feels and his longing for something. This results in his becoming miserable if he is not rightly understood. There is a mental hunger for sensations as real and as important as physical hunger. And of the two, mental starvation is the most deleterious. This sen-

¹ For this section the author is much indebted to the article by Dr. Hays in Norris & Oliver's *System of Diseases of the Eye*.

sation hunger leads them to adopt various substitutes. They press, rub, and bore in their eyes with their fists which some think a sort of vicarious sight. Some of them with a little light sense move their hands in front of their eyes or look at the sun. They are also prone to rocking motions which are hard to break up. On account of this vacuity of mind Netlicher advises giving the blind much music in order to keep the mind from degenerating.

Jastrow has collected 114 cases of blind persons of various degrees of talent of whom the ages at which they became blind could be determined. Of these, 11 were very distinguished and 10 of them became blind in advanced youth or later life. There were 25 in the group next in eminence and they became blind at nine or ten years (musicians being the earlier). The remainder acquired blindness at about seven years of age. The musicians, however, became blind on an average at three years. "All this," he says, "speaks strongly for the permanent intellectual importance of sight in early education."¹

The importance of vision for cerebral and mental growth is also shown by the fact that blindness produces atrophy in the corresponding cortical centers. Investigation on instincts have also shown that certain sensations are necessary at the proper time in order that the particular modes of behavior should become fixed and permanent.

The absence of visual sensations makes the perceptions of the blind very different from the seeing. They do not attach the same idea to different words that we do. This the teacher of the blind must continually keep in mind and in a way become a pupil of his charge. The idea that a seeing person has of a room is usually composed of a series of mental pictures, that of the blind man must come from the senses of touch, muscle and hearing and is composed of the distances he can walk, the way his voice sounds and the echoes that it awakes and possibly the touches that he may receive. For the blind "a soft sonorous voice is the symbol of beauty." Blacklock, the blind English poet, associated "some moral quality with visible objects" and probably all congenital blind are like him in this respect.

Lenôtre, the blind man of Puisseau, thought the eye to be an organ upon which the air produced the same effect as the staff on the hand. For him a "mirror was a machine by which objects were placed in relief out of themselves."

Aside from curiosity probably few blind would wish for sight on account of the revolution in their mental life that it would involve. They would have to learn their world over again. For us it would be the same as acquiring a sense for the X-ray.

¹ Fact and Fable in Psychology, pp. 316, 331.

The opinion of Lenôtre on this subject has already been quoted.

Indirectly the loss of sight results in great immobility. The blind child has no one to encourage him to move, so he sits in his corner, rocking in his chair, possibly throwing his arms about and jumping and crying. He walks little and often reaches the age of seven without running. This lack of movement produces bad physical effects. Nutrition is slack. He is anæmic, lean, and his muscles are flabby. Their joints are flexible so that the hand can be bent back to touch the fore-arm. This is one reason, so Netlicher thinks, that they become beggars. But the greatest loss to the blind from their lack of movements is the loss of sensation. We realize this when we compare them with the normal child and his continued movements and sensation hunting. This leads to much delay in their mental growth.

The age at which the child becomes blind has, as we have seen, an influence on his mental growth. The condition of the child becoming blind previous to the age of five or six approximates that of the child born blind.

Jastrow personally examined two hundred blind persons making inquiry, among other things, as to the kind and nature of their dreams. In 58 of these cases the blindness was total. Of these, 32 became blind before the end of the fifth year and not one of these had dreams of seeing. Six became blind between the fifth and seventh year and four of these saw more or less vaguely in dreams. Twenty became blind after the seventh year and, "all have dream-vision." So he says, "the period from five to seven years is indicated as the critical one." The visual center needs the sensations for its development and if deprived of them "degenerates and decays." But if blindness accrues after seven years the center can maintain its function.¹

Dr. G. Hurmann, in 1838, made a similar series of observations. Of 14 totally blind persons who lost their vision before the fifth year, none had dream vision. Four lost their vision between the fifth and seventh year and only one of them had definite dream-vision. And 35 lost their sight after seven years and all had dream-vision. He also found that those who became blind later in life retain this power longer than those who lost their sight near the period of the fifth to the seventh year, although he found two cases in which the power was retained until the 52d and 54th year before it faded out.

Jastrow's cases of partial blindness point to the same time as the critical period. This has also been found to be the critical period for mutes. He likewise found that the earliest remembered event among 100 blind persons gave an average age of 5.2 years.²

¹ Jastrow: *Fact and Fable in Psychology*, p. 342.

² *Fact and Fable in Psychology*, p. 345.

The senses of the blind are commonly thought to be much sharper than those of seeing people. And many stories are told to prove the point. Saunderson could distinguish by touch the true from the false among a number of metal pieces. We are also told of a butcher of Bologna who could tell by touch the weight of an animal that he was going to kill. He knew "weights and moneys" and did all of the business of a butcher. But those that come in contact with the blind are convinced that their senses are no more acute than those of seeing people and that there are as great individual differences. Their condition compels them to observe differences that are neglected by seeing people, hence, their so called sense acuteness is more a matter of apperception.

Prof. Griesbach, of Basile, made some experiments upon the senses of the blind. His "observations were made upon those otherwise healthy. In the power to receive impressions by touch, no remarkable difference was noticed between the seeing and the blind; or if small differences did exist they were in favor of the seeing. In those born blind, the tactile sharpness was somewhat less than in the seeing, and in some cases the sensorium generally was equally defective. In the capability of localizing impressions by sound, no difference existed between the blind and the seeing, nor in the acuteness of hearing. In both, great individual variations occur. No difference was observed between the two classes in regard to the acuteness of smell. In the execution of manual labor the blind became fatigued sooner than did those of equal age who could see. The blind were much more fatigued with manual labor than with mental work, which was not the case with those who could see. Both among the blind and the seeing there were persons who had many, others who had only a few, and others again who had no illusory or erroneous impression of touch."

Hocheisen experimented on the touch of seven blind and two seeing persons with the compass points. The places tested were the back and palm side of the phalanges, palm and back of the hand, and palm and back side of the wrist. From an average of fifty tests he concluded that the sense of touch was no finer among the blind than among the seeing and that the objective acuteness of the trained blind is due to psychical causes, who, by attention, notice neglectible differences.

Lucy P. Brownell repeated the experiments of Hocheisen on four blind and four seeing persons. She found much individual variation, and that the right hand did not correspond with the left, and that the index finger is usually the most sensitive. She finds no greater fineness of touch among the blind than the seeing. She finds that reading does not make the finger more sensitive. Movement is a very important factor in reading and

without it the blind are practically unable to read, hence, reading would not increase the fineness of discrimination of the compass points.

The phenomena of "face perception" in which they seem to see by the skin is really their ability to appreciate delicate sensations of touch and heat. But it is usually only the presence of very near objects that they can tell in this way. Saunderson when assisting in making some astronomical observations was able to tell when a cloud passed between him and the sun. And Lenôtre du Puisseau could estimate the distance of fire by the degrees of heat and the nearness of large bodies "by the action of the air on his face."

Touch and hearing are the substitution senses of the blind. The ear performs many of the functions for the blind that the eye does for the seeing. Like the eye, it gives knowledge of things at a distance. It gives them some sensation of space, for one of them says "When I am in a vast plain it seems to me that I have lost my hearing." By it they can recognize the age and size of persons and judge of their temper. By it they can judge of the size of the room that they are in or whether they are in a street or alley. By it they recognize the position of persons and of furniture in a room and tell whether the latter has been disarranged or not. The ear is the chief guide in walking and by the echo they tell whether they are walking beside a fence or not and of the height of the fence if it is not greater than their stature. They can also tell the material of which the fence is made, whether of wood, iron, or stone, and of the way it is built, as picket, matched boards, or gas pipe. By the echo they tell the position of trees, posts and obstructions. The echo also enables them to walk straight and to tell the positions of gates and doors. Anything that interferes with this echo, as snow, loud noises, or rubbers on their feet disturbs them very much and renders walking more or less difficult or impossible. In walking the touch of the feet also helps them to walk straight and tells them of the kind of walk, as flagstone, brick, concrete, asphalt or earth, and also of its slopes or depressions.

The blind have a reputation for having a good memory. What they do know they know more tenaciously. Eye knowledge is more illusionary and more easily corrected than other sense knowledge, hence, the latter is more stable and fixed. They acquire more easily from hearing than seeing people. Du Puisseau could recognize the voice of a person that he had heard only once. And, as we have seen, the annals of the empire were kept by the memories of the blind of Japan.

The emotional life of the blind is limited. They are spoiled by tenderness and become vicious. A sense of imperfection

broods over them, and those that are with them should aim more at making them feel satisfied than satisfying them. The ennui of life is increased but does not lead to suicide. They are timid, and modesty to them is imaginary. Disputes among them are rare.

They are individualistic and have a taste for independence and liberty and are lacking in friendly and social emotions. Since their knowledge of the emotions of their fellows only comes to them through the ear, they lose much of it and hence lack in sensibility. We learn by seeing, but they get it only by inflection. "A soft sonorous voice is to them the symbol of beauty." The uplifting power of nature and the beauty of the earth, sea and sky is to them unknown.

They are given much to reflection which is concentrated upon themselves, hence, self-love is their most prominent defect. They are as self-conscious in public speaking as the seeing. They dislike to be helped and thought incapable of getting around. They are easily led to become suspicious and pity has a bad effect upon them.

The sex impulse manifests itself at puberty. And flirting is noticed among them as well as among the seeing. Self-abuse is thought to be quite common among them. But this may be due to the fact that they are more easily detected in it. However, their sensation hunger and the tendency to stimulate other senses for those wanting would impel them towards it more than the seeing. Hence, all authorities seem to agree that the boys and girls should be educated separately.

The blind are given to reflection and have great facility for analyzing and synthesizing ideas. They are not so easily deceived by the appearance of things and their judgment is truer. They have a great desire for knowledge and unusual powers of imagination.

The ideas of the blind are different from those of seeing persons yet they must use the same language with the result that it is poor and difficult. Some poets have been blind but it usually came on them late in life. The English poet Blacklock, however, lost his sight in infancy. It is said that his "productions are marked by elegance of diction, ardor of sentiment and accurate description of visible objects" but "his works will be searched in vain for poetry of a very high order." He always "associated some moral quality with visible objects." Some blind people use language with the precision of the seeing. This, it is thought, is to be explained on the basis of something analogous to colored hearing.

In regard to the will of the blind it is to be noted that the will has less control over the ears than the eyes. In later life they are strong willed and positive. They stick very tenaciously

to a trustful person. Subjecting them to pity and making them suspicious by watching is very bad on their morals. They should be made trustful and helpful. Conscience is not as influential with them as with the seeing. They are very religious. Their sense of helplessness, which is regarded as one of the roots of religion, is supposed to account for this. However, their defect renders them incapable of fully appreciating religious services.

PEDAGOGY OF THE BLIND.

The strong sympathy or pity aroused in the minds of mother and relatives by the condition of the blind child leads to excessive care on their part much to the detriment of the child. They care for him, wash and dress him, anticipate his wants, in fact do everything for him, and permit him to do nothing for himself, thus rendering him incapable of doing anything. Or the mother with the many duties of a large family may not be able to give him the attention that he demands. In either case the child remains inactive, sitting in his rocking chair in the corner amusing himself with whatever sensations that he may be able to excite, being fearful of movement since he is continually cautioned or receives no proper encouragement. Hence he becomes pale and anæmic with awkward and inco-ordinated movements and flabby muscles, and so incapable of properly appreciating the few sensations that he does receive. The education of the seeing child begins at birth, but too often that of the blind child can only be said to properly begin with his school life.

The blind child should walk as soon as the seeing child. But in order to do this he needs much more training. They should be left to walk by themselves, and should be given exercises in walking up and down stairs. Netlicher thinks that they should early be taught to use their left hand as a feeler, and so walk with the left shoulder first. This will also aid them by getting the wind in their face. They are more liable to walk in a circle than a seeing person who is blindfold, this is thought to be due to the fact that they can see more with one eye than with the other, and that one side is better developed than the other. They should, also, be practiced in walking where there are obstacles, and taught to walk planks and spring ditches in order to give them confidence.

Much attention should early be given to the toilet. They should be taught to dress themselves. It is difficult for a blind child to tell when his face is dirty or whether their clothes are in a neat condition. They must be taught to comb the hair and to keep the finger nails clean. It is difficult for them to use a spoon and to tell when it is right side up, so they have

to be taught. Much training is necessary in order that they may know that it spatters when placed in the soup.

Much attention must also be early given to teach them correct postures and attitudes. Since they cannot see they are given to stooping and making faces and grimaces. They rub and bore in their eyes. They are very prone to rocking and automatic motions. These are very hard to check, and tying the hands is sometimes necessary. They also have a tendency to tap everything and to hold their mouth open in order to hear better.

The prestige of convention is lacking with them. They are ignorant of decorum and social decencies that the seeing child acquires almost without knowing it. They do not know that it is proper to turn the face toward the one speaking and not to gap and sneeze, etc. They must be taught how to stand in dressing so as not to expose the body.

Since the blind have to spend their lives among the seeing, to all outward appearances they should be taught to be as much like them as possible and so become as agreeable as possible. They have no consciousness that their habits are bad or their attitudes disagreeable. The blind are always noticed by strangers and subjected to more scrutiny than seeing people, so it is a kindness to them to correct unsightly habits, and the earlier this is begun the more successful it will be.

The education of the seeing child begins at birth, and play is the greatest educational factor of his early years. The blind child must be early taught to play, both for its physical and mental as well as moral effect. However, great care should be exercised in this to develop proper initiative on the part of the child. He should be bounteously supplied with toys, especially those which are models of the things of real life, such as houses, horses, wagons, soldiers, fire engines, animals, etc. He should be taught all the games of seeing children and be urged to do all that seeing children do.

The age at which the children are received into the schools for the blind varies in the different States from six to nine years. But the "observation of the disastrous mental, moral and physical effects of neglect and ill usage upon blind children before reaching the school age" has led some schools (private) to receive them much earlier, in one place as early as three years. The results of this are that the State is saved hundreds of dollars, for it is well established that the "nervous and shattered physical condition of some of these neglected waifs retard their progress in the kindergarten and primary department for a long period." But if a little attention were given to making the childhood experience of the blind as full and complete as possible this action on the part of the special

schools would be unnecessary. In fact all seem agreed that the association of the blind with the seeing child should go as far as the second or third year of school life, even if no special attempts are made to teach them to read. Indeed such action on the part of the child will save him one or two years in the special school.

The kindergarten is a most effective institution in the training of defectives. On account of the poor condition in which the blind children are brought to the schools, some think that all of them should be given the kindergarten training until nine years of age. It is the most effective means for reaching and developing them. It arouses them, wakes them up and puts them in touch with their surroundings. The mat weaving, card sewing, clay modeling, paper folding and games make the blind child more alert, sharpen his perceptive faculties, give him better use of his hands and make him more considerate of others. For training the hand as hand also trains the brain. In fact this training gives them an impetus which is felt through the remainder of their school life.

The kindergarten work in the best schools for the blind is the same as in the schools for seeing children, not even the color work is omitted, for some of the children can see a little, and those who cannot delight to talk about it.

The sensation starvation to which the blind in a greater or less extent are subject makes special sense training a necessity for them. Other senses must be substituted for vision, these are hearing and especially active touch. Their fingers have to be ten eyes for them. They must be taught what birds, insects and the various forms of animal life are. They have, also, to be taught to distinguish metals and coins. Models are necessary to teach them the form of houses, churches, hills, valleys, railroad trains, steamboats and all objects that are too bulky or otherwise incapable of being handled by active touch. The teaching and demonstration work, which among the seeing appeals to the vision, must be made to appeal to the touch of the blind, hence the need of tangible apparatus for science and of relief maps for geography. Again, people assume lack of knowledge of things not touched, so things must be placed in terms of touch as seeds, metal, glass, fruit, insects, etc. And such work should be arranged so as to lead to motor response. The blind, like all others, learn best by doing, hence the introduction of manual training and especially of Sloyd which seems especially adapted to them. The knowledge of the use and manipulation of tools is useful not only for motor training but as leading up to the trades which some of them must follow in after life.

Physical culture is much needed by the blind to develop and

give them control of their weak and flabby muscles. Besides the direct physical advantages gained it gives them "confidence of bearing and grace of carriage, sharpened mental faculties, greater self-control and reliance," and helps them to overcome the timidity which is aroused in them by their being continually warned of danger.

All forms of active games have a place here as skating, dancing, bicycle riding, etc., as well as the more systematic gymnasium work.

The sense of smell, which is comparatively little used by the seeing, is capable of giving much information, and among the blind it should be trained by full courses.

Hearing is the educational sense of the blind. From it they get their greatest profit and enjoyment. The methods of reading and writing for the blind are at best cumbersome and but little comparatively is written in them. So they have to place great dependence on their ears. The power of attention through the hearing should be cultivated to quick perception and strong retention. To this end oral instruction, conversations, readings and addresses are useful, as also the musical training.

The curriculum of the schools for the blind is the same as that for seeing children in the grades and the high school, for all of the schools aim to complete the high school course. And the work differs only in that much more attention must be given to sense perception work, especially to the cultivation of touch and hearing.

In the high school the usual amount of attention is given to literature, history, rhetoric and mathematics. Blindness acts as a serious obstacle only in the science work, which, of course, they are unable in great part to pursue according to the usual laboratory methods. Hence the amount of science work varies a good deal. Physics is taught in all of the schools. The other sciences are also taught, and they are, in the order of frequency, geology, chemistry, physical geography, zöology botany and astronomy, while psychology and mineralogy are mentioned. Latin and one of the modern languages are offered by most of the schools although all of the scholastic languages are offered by some schools. One school offers ethics and philosophy. Typewriting is taught in all of the schools at present, and offers a most convenient method of communication with their seeing brethren. Some have been able to use it as a means of support.

There has been a movement to establish a national college for the blind similar to the Gallaudet College for the deaf at Washington. But the movement has been abandoned for it is thought that these ends could be best attained by giving scholarships at the colleges already established. It is felt by those

interested, that the establishment of a separate college for the blind would tend to mark them off as a separate class, which is now considered undesirable.

The special problem that arises for solution in the instruction of the blind is the devising of means for teaching them to read and write which shall be both practical and efficient. We have already mentioned the early attempts at the solution of this problem and finally the invention of embossed printing by Haüy. He made use of the Illyrian or Slavonian alphabet, the same that St. Jerome had used in the Vulgate. Large editions of a few books were printed which created great enthusiasm among the seeing but were not well adapted for the blind for they were eventually sold for waste paper. Later, however, this type was improved by being made smaller and of a more open and perfect form which made them more easily distinguishable.

James Gall, a publisher of Edinburgh, saw one of these French books and became greatly interested in it for here he saw a means of giving the Bible to the blind. He procured some of the French types, but soon saw that their defect lay in their lack of legibility to the touch, so he set about improving them. He concluded that the capitals were too symmetrical and uniform to be distinguished by touch, so he adopted the common lower case type. These he changed by making them larger and more open and angular. This has since been known as the triangular system, and was printed in high relief and was easily read.

An ingenious attempt was made at the Glasgow asylum to form an alphabet of knots in a string. And books composed of balls of string were formed after this method. But needless to say it soon fell into disuse.

A prize of twenty pounds, offered by the Scottish Society of Arts, in 1827, for the best alphabet for the blind, called out the Alston alphabet. It was composed of boldfaced Roman capitals. This was the alphabet that was introduced into the Pennsylvania Institution by Friedlander.

The next system in the field was the stenographic devised by Lucas, of the Bristol Institution, in 1837. The letters were formed of curves, strokes and circles similar to those of the Pitman phonography. It was adopted by several schools in England, but was found to be difficult.

About the same time Frere invented the phonetic system in which the sounds of the language were represented by stenographic looking signs. This system was easily learned, especially by old people, but was said to be hard on their pronunciation. It was only adopted by one school.

The Moon system is composed of nine characters formed of

arbitrary lines; these are arranged in different positions so as to give some resemblance to the Roman letters. It makes use of "return lines," but does not reverse the letters. The letters are large and easy to read by touch. A boy that had been unable to learn the other systems after five years work learned this one in ten days. However, the books in this type are large and costly. It is said to require sixty volumes folio to print the Bible in this type. It is easily learned by persons who lose their vision late in life, and since the majority of the blind are over fifty years of age the system is still quite popular. Over 195,000 volumes have been printed in this type, and in 420 languages and dialects. There are two printing houses which use this type, one in London and the other in Philadelphia.

Soon after the Massachusetts school was established Dr. Howe gave his attention to devising a system that would be easily tangible but at the same time easily read by sight. The result was the so-called Boston line type. He used the lower case Roman type, but made the letters more open and angular. It received the first prize at the London Exhibition of 1852. Backed by this endorsement, and the authority and energy of its author, it soon became the predominant system in this country, even the Pennsylvania Institution adopting it.

The attempts so far have made use of lines, and most of them have tried to approximate the Roman type. For it was thought that by making use of an artificial alphabet the tendency would be to make the blind a class apart from their seeing brethren. But the difficulties of the line systems directed the search for a type for the blind in another direction. It was soon found that a series of points can be much more easily perceived by them than a system of lines. So point alphabets for the blind stand on a more scientific basis than the line alphabets.

The first attempt in this direction was made in 1825 by Chas. Barbier, of Paris. Five years later this system was taken up and perfected by Louis Braille, of the Paris school, and it has gone by his name ever since. The basis of the system consists of a cell of six points arranged in two vertical rows. The omission of one or more of these points give the signs for the various letters, figures, punctuation points and mathematical signs. Also it includes a complete musical notation.

Besides its legibility, Braille has another important feature which the line types do not have, and that is it can be written by the blind. This is done upon a writing board provided with a guide by puncturing the paper with a stylus, but it must be written in the reverse order, so that the blind have to learn two alphabets, one for writing and the other for reading.¹

¹ M. Dussaud has recently invented a writing tablet in which the

This system was very slow in being adopted, for although it was used by individuals yet the Paris school did not adopt it until 1854. But it finally came to be used in the schools of France, Switzerland, Belgium, Holland and Rio Janeiro. Braille was introduced into England in 1853 by Johnson in a book entitled "Tangible Typography," but in 1868 it was little known. When adapted to English it became cumbersome and wasteful for it did not make use of the principle of recurrence, that is that the letters most used should be represented by the fewest points. It had antiquated contractions and abbreviations and allowed of "bad use" like the omission of capitals, etc.

As we have seen the line type became predominant in the schools of this country. But eventually it became apparent that many of the blind could not learn it. In 1868 Wm. B. Wait, of the New York school, found that after two years instruction 32% of his pupils could not read, and in one large school 58% of the pupils were non-readers although some of them were the brightest pupils in the school. In all he collected statistics of 664 pupils in his own and in other schools and came to the conclusion that only 34% of them learned to read the line type with "pleasure and profit." So he set about to devise a new system. He determined that writing for the blind should respond to the following tests. It should be tangible, it should be capable of being written, it should be adapted to mathematics and music and the characters should be equivalent to and correspond with the seeing characters for which they are a substitute. Line type fails in tests one and two for it is not tangible nor capable of being written. Line is deficient in variety and intensity for touch. Change is necessary for perception by touch, hence points are more tangible than lines. So he made as the basis of his system six points arranged in two horizontal lines. He preferred the horizontal arrangement because it made fruitful the principle of recurrence, it is more capable of abbreviation and also expansion and also offers the basis for the formation of a system of shorthand. From tests on his pupils he concluded that all blind persons could learn this system, for the 32% of his pupils that were unable to learn the line print after two years of instruction learned his system after eleven hours work. This is the so-called New York point system. At the next convention of the instructors of the blind it was resolved that New York point should be taught in all the schools. A national printing house was shortly afterward es-

impression is made upward, thus enabling the child to read what is written and obviating the use of two alphabets. See "Appareils pour les Aveugles." *Comptes Rendus de l'Acad. des Sciences.* 10 Feb., 1902, p. 375.

tablished at Louisville, Ky., for furnishing books in this type. In 1893 it is said that most of the schools preferred this to line print.

This invention follows embossed printing as the next great advance in the methods of instruction of the blind. Its chief advantages of tangibility, and that it could be written, were of great importance to the blind for it placed them more on the basis of seeing pupils. It made them more self-dependent, and by being able to read and write they were thus enabled to rely less on oral instruction.

In 1892 Mr. Smith, of the Perkins Institute, promulgated a modified form of Braille known as American Braille. He attempted to combine the best features of New York point with the Braille system. He eliminated the defects of old Braille and adopted the principle of recurrence. Its points of excellence are said to be that it is best in point of space, is less laborious to write, is easier to comprehend and more elastic. And it is claimed that it is superior to New York point in that it does not waste linear space, has a better system of punctuation and does not permit of such long and undesirable characters.

Shortly after this system was promulgated a typewriter for writing Braille was invented, and a little later a stereotype maker for embossing metal plates. With this latter machine and a few appliances each school can have a printing office of its own. These two inventions greatly increased the spread of American Braille. So that now the contest for supremacy lies between it and New York point. This, although a seeming wasteful process, must be beneficial in the end in selecting the best system.

However, the line type still has its advocates who favor it for reading although the point must be used for writing. It is claimed that the pupils themselves favor it when properly taught. For they claim that they can read it better, that it is less fatiguing, that it does not irritate the fingers like the point, that they can understand the punctuation better, and that on the whole it is more pleasing for the seeing can see what they are doing. The advocates of line point out the process of learning is not so different after all, that the point print is much more easily injured and disturbed. And they claim that any system like point must be defective that depends on position, reversion and substitution.

Large and well selected libraries exist in all systems which are being continually increased. One school has a library of 13,000 titles, over 7,000 of which are in American Braille.¹

¹ In 1882 the Boston Public Library established a circulating library for the blind. Thirteen years later one was established in New York,

There are two systems of music notation in use, the New York point and the Braille. The same contest for supremacy exists between these two systems. The tendency seems to be toward the Braille since it seems to be more complete and more easily handled than the New York point. The Braille is the same the world over, and it has the advantage of a larger amount of printed music.

As we have seen, the blind mathematician Saunderson, was probably the first one to invent a cyphering tablet. Many have since been invented, but that by Taylor is probably the best. It consists of a board in which are columns of octagonal holes. Square pins fit in these holes, thus giving eight positions and when reversed eight more. On one end of the pin is a raised edge, on the other this edge is divided by a notch. The sixteen positions afforded can thus give signs for the digits and the algebraical signs.

Thirty-nine States and Territories have established schools for the education of all those persons of school age who cannot profitably attend the public schools on account of defective vision. In addition to educating them the schools propose to render their pupils capable of self-support.

Music occupies a large place as a culture study in all schools for the blind. And it is taught to all pupils that show any aptitude for it. Many of the blind have adopted it as a profession, and in it they have probably won their greatest renown. Some have become teachers, while probably more have earned a livelihood by playing the church organ. But it is probably in piano tuning that the blind are best able to compete with their seeing brethren. It is a trade that demands high mental training, but not such great mechanical ability. It is taught in many of the schools, but it is found that only a small per cent. have the ability to become professional tuners. To succeed here as elsewhere the blind must be better trained than their seeing competitors.

Various trades are taught at all of the schools. The most common of these are broom making, cane seating, mattress making and upholstering. The girls are taught to sew, knit and crochet. Other have been introduced at various times but have been dropped. "Most of the institutions for the blind in America," says Mr. Anagnos, "have tried the experiment of introducing one trade after another with the view of securing gainful employment for their graduates and apprentices, but without avail. Such industries as seemed to give promise

Philadelphia soon followed, and a reading room for the blind was provided when the new Congressional Library building was occupied. There are now eight other cities that provide circulating libraries.

of fair profit have in turn been taken up only to be dropped after a few years experience as inadequate and unprofitable. Thus every attempt to utilize various mechanical arts and render them reliable sources of income has failed." This is due to the difficulty that the blind mechanic has of competing with the seeing one and to the difficulty of marketing his product. It is very often as a business man and not as a mechanic that he fails. Again, the use of machinery has thrown him out of the trades in which he formerly found employment. Then the course at school is too short to teach a trade with the best results, and they do not attain the skill that they would if apprenticed. It is often the case that the pupil is only becoming skilled when he has to leave school. The value of a trade to the blind depends on the business conditions of the community and of course varies from place to place. Brush making, which was formerly taught, is no longer profitable, and cane seating is no longer much in demand. Broom making still remains the trade most suited to the blind, and is taught in nearly all of the schools. It is easily learned, and hence is suited to those dull mentally, the ones that have to depend on their hands for support. Yet even here it is found that although all can size the corn yet only 90% can learn to sew and only 50% to wind properly. And to be able to succeed here the product of the blind man's work must be able to compete successfully with that of the seeing. So it is not as hand workers but as brain workers that the blind succeed best as the history plainly shows.

We are told that the words *masseur* and *blind* are synonyms in Japanese, and indeed it would seem that it is a profession particularly adapted to them. Massage has recently been introduced as a professional study in the school for the blind at St. Petersburg, and its promoters are very enthusiastic concerning it. The instruction includes anatomy, physiology and technique. Skeletons and manikins marked in Braille and wet specimens are used in instruction, and also a rubber manikin for practice. The course includes a period of actual practice in hospital work before the pupils are sent out for private practice.

However, there is no employment or profession in which the blind are not found. According to the 11th census the employments in which the blind were most numerous are in the order of frequency, farmers, laborers, carpenters, merchants, mechanics, teachers, miners, clergymen, peddlers, physicians, shoemakers, tailors, and some were even artists, photographers, engravers and painters.¹

¹ There are nine working and industrial homes for the blind in the United States. These are situated at Oakland, Cal., Knoxville, Iowa,

How many of the blind do succeed in supporting themselves after leaving school is difficult to determine for many are lost sight of, especially the girls. The New York State School claims that 90% of their pupils are self-supporting. Truly a high percentage when we consider the proportion of mental deficiency among them. In 1878 a census of the graduates of all the schools was taken, it showed that: "16 became superintendents of other institutions; 214 became teachers or were otherwise employed in institutions; 34 became ministers of the gospel; 84 authors, publishers or lecturers; 310 were engaged as teachers of music or were vocalists outside of institutions; 60 had been organists in churches; 125 piano tuners; 937 had been engaged as teachers, employees and workers in handicraft; 277 were storekeepers, etc.; 45 became owners and managers of real estate; 760 (mostly women) were employed at housework at home or in families, or at sewing machines, or by hand, and 78 were in homes of employment."

In 1880 of the 48,928 blind persons in the United States 2,560 were in almshouses, but here "it must be remembered that blindness is an affliction of old age."

According to the report of the New York institution for 1879, "More than 1,200 persons have been instructed, and have gone out from the institutions for the blind in this State, only 21 of whom were found to be in almshouses on the 30th of October, 1879." Such facts give great force to a statement made by the board of State commissioners of public charities upon this subject. They say: "As observation shows that educated blind persons seldom become a public charge, it would seem important, not only in its social bearings, but as a question of political economy, to bring as many of the blind as practicable under proper educational training." To meet this condition many of the schools favor a law enforcing compulsory education of the blind.

Psychology during the past twenty-five years has had much to learn from pathology and pedagogy would no doubt gain as much from a study of the methods of instructing defectives. And, indeed, the influence has been shown in one of the great classics. Rousseau lived near the school where Pereira was teaching the deaf to speak, and was often an interested visitor at the school. As a result "the book of Emile is full of experiment upon physiological teaching which could only have originated in the school for deaf mutes; so identical are the theories of the book with the practice of Pereira."¹

Louisville, Ky., St. Louis, Mo., New York City, Iberia, Ohio, and three in Philadelphia, Pa. In 1892 these had a population of 266, and their sales amounted to \$91,000. Mentor, Vol. I, pp. 170-171.

¹ Seguin: On Idiocy.

Although the teachers of defectives had to consider "the standpoint of the child" in the formulation of their methods, yet the prevailing educational theories of the time dominated them and gave the prevailing direction to their practice. They held to the typical ideal man and consequently to the average child who was to be transformed into this ideal. The blind child shows a vast mental lacuna due to his lacking sense. He is deficient in the sense which gives knowledge of form, color, size and relation. Consequently, in order to make him as much like the seeing as possible, one must seek by means of a substitution sense to give him this knowledge. Touch came the nearest to filling this need, and "touchableness" became the end of the pedagogy of the blind.

Perception involves clear and distinct apprehension and the power of reproduction or perception expression. For the blind this means the apprehension of things through touch and consequently the emphasis of sense training and Pestalozzi's perception principles.

But do touch and vision agree as much as they seem to at first sight? Although touch wants the series of light and color yet it can give us form and size. But a great many objects that are capable of being grasped give no or an uncertain *vorstellung* as, for example, insects, flowers and the small forms of plant and animal life. With objects of large dimensions as woods, fields, city, roof, the case is the same. Touch can give no idea of these, or even at best only a very indeterminate and inadequate one. Magnified and diminished models are used, but seem to be of doubtful worth. Teach a blind child about mountains by means of little piles of sand, or of rivers by artificial rills. The memory image connected with these words will be that of sand piles and rills, and leads consequently to a very inadequate idea. His idea of distance is much less adequate than that of a seeing child. In fact the blind have not sufficient spatial imagination to translate such models into their proper space relations.

Æsthetically the sensations from touch are not the same as from sight. Expressive states do not mean the same to the blind as the seeing. They do not get the same ideas from statues and works of sculpture, for the secondary sensations of hardness, coldness and smoothness enter in and cause more or less interference.

It is impossible to have the blind form perceptions like the seeing. For no matter how much time and trouble were spent to gain this end yet there would always remain a difference.

Hitschmann, himself a blind man, contends that they do not think in touch terms, but in what he calls a "substitution idea" which, he thinks, is similar to the general idea of the

seeing. This seems to arise more from the definition of the thing than from experience.

Among seeing people the types of imagination that are found are visual, audile and motile, and if touch terms do appear they are not of definite objects, as tingling from injury, pricks, cuts, blows, goose flesh, etc. The same is true of the touch hallucinations of the insane.

In fact it appears that touch does not give us a definite picture of a particular object, no definite series of touches is associated with a special object. The touch sense differs from the other senses in that its end organ is distributed over the whole body, and any part of the end organ may be brought in contact with an object. And since the tactile corpuscles are variously distributed, the resulting touch picture would depend on the part of the skin stimulated. True the fingers are regarded primarily as *the* touch organ, but here the sense of touch seems to serve more as a guide to motion than to be exercised for its own sake. We have seen that the blind differ from the seeing in the acuteness of their active touch and not in passive touch.

The blind-deaf-mutes are supposed to think in touch or motor terms, but this seems to have been reached by a process of exclusion. Laura Bridgman while thinking formed the words in the manual alphabet also when dreaming.

So it would seem from general consideration that Hitschmann is right in his contention and that the blind must think in either auditory or motor terms. Motor terms must play a large part in their mental acquisitions for it is their chief sense of gaining a knowledge of spatial relations.

There has been a tendency to bad practice on the part of those who make "touchableness" the end of pedagogy of the blind. For it has led them to overburden the mind with the concrete too often leaving generalization to take care of itself.

All this goes to show that we cannot apply the pattern of the seeing to the education of the blind. Their own standpoint must be studied and their particular capabilities developed to the fullest extent. Only then will our practice be sound and only then will we be doing all that we should for this afflicted class.

These considerations will also change the direction of the emphasis in our sense training work. The ear is the educational sense of the blind. Most of his information is received through it, and probably most of his thinking must be done in auditory terms, and the bulk of his knowledge is knowledge of definition. So in training the ear we are training his most useful and important sense.

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THE TEACHING OF ENGLISH.

By ALEXANDER F. CHAMBERLAIN.

English is probably both the least-taught and the worst-taught subject in the whole educational field. It is bad in the grade schools, worse in the high schools, worst in the college, while the university reaps the full benefit of this evil *crescendo*. The "English" of the modern curriculum varies from a silly combination of "Mother Goose" and the jargon of science or the shibboleths of religion to a disingenuous synthesis of antique philology and emasculated literature. No wonder some of the men and women who speak and write their language well would extend to prose the judgment passed upon poetry: English untaught is taught best. A teacher of English is so often a spoiler of English. Sometimes the only advice to a young man (less often a young woman) contemplating a serious composition in his mother-tongue is that of *Punch* in the case of marriage: Don't. How does it happen that a man like John Bright, who never had the advantages of a classical or a college education, spoke and wrote perfect English, while our well-trained men of science can often do neither?

In the present brief essay the writer, from his own experience and investigation, desires to discuss some of the causes of this state of affairs and to suggest some common-sense remedies.

A New Orientation. Before we can expect good English both teachers and pupils, together with the public interested in educational affairs, must orient themselves anew concerning the origin and development of their mother-tongue. The study of English seems about the last place to feel the full effect of the Darwinian revolution. With wonderful obstinacy it keeps its face towards the setting instead of the rising sun, towards the past rather than the future. It would be a decided advantage were every teacher compelled to take a course in modern Chinese instead of in ancient Greek, for then he would possess some useful knowledge about the form of human speech most akin, psychologically, to his own and not so much useless lumber concerning that one most remote from it. Herein lies the essence of the new orientation. Let us study English in its relation to the only tongues that can ever compete with

it for the mastery of the world,—Russian, Chinese, Japanese. The recognition of the psychological kinship of English and Chinese in particular may be of more moment to the race than was the discovery of the linguistic unity of the Aryan of the Indus and of the Thames. The Greek, Latin, and Sanskrit aspects of English have been fearfully overdone. We must exorcise the ghost of Max Müller and hold our *tête-à-tête* with the living yellow man who clings to his speech and propagates his kind so well. We can be very sure he will still be numerous and interesting when the last English grammar has been written. A course in Chinese will reveal to the teacher in convincing fashion that his language is a vehicle of thought and not a museum of grammar, and that, in matters of speech, the brains of 400,000,000 Mongolians and 100,000,000 Anglo-Saxons have moved upon remarkably similar lines representing, psychologically, the high-water mark of human achievement. This is the best antidote for the classical nostrum,—to be taken *quant. suff.* The study of English must be keyed to the *future* not to the *past*.

A Broader Field of Comparison. Some of the poor character of English teaching is certainly due to limitation of the field of comparison. The individuality of the mother-tongue has been lost sight of and its special virtues underestimated by the long-continued over-valuation of the merely formal qualities of Greek and Latin. A like effect has been produced by what Lenz calls the “deification” of Sanskrit. Under the pernicious influence of the classicists, the so-called “modern languages” of continental Europe have been simply pitied or despised, until the crying needs of commerce and world-politics forced them into the educational field. The neglect of the other living languages of mankind has been absolute,—the new facts gained from the investigation of Asiatic and American Indian families of speech have not yet come into the ken of the “expert” in English, who is wofully ignorant of the general principles of linguistic evolution and often the exponent of some artificial system of instruction in which the grammar, the dictionary and the text-book take the place of living thought and its genial expression. A good waking up of the teacher along this line is absolutely necessary. Some up-to-date discussion of the essentials of comparative philology should find a place in every normal school, and as much of it as can be readily understood be given to the pupils in every high school. Then we will not find a graduate of one of the best high schools in Massachusetts leaving its halls under the impression that English is a descendant of modern High German, or believing that *all* new words in the language *must* be derived

from Greek or Latin. The calamitous effect of such ideas upon the use of English as a tool of thought is only too apparent.

No Language a Model for Another. It is an idea born of methods of monks and pedants that the Latins and the Hellenes in laying the foundations of their own languages were intent upon improving the style of modern English. Every tongue is *sui generis* as a factor in human evolution. English in this respect is absolutely independent of Greek and Latin, whose contributions were in no way foreordained or predestined for the purpose of eking out the time of the grade-school and teaching young Americans how to read, write and speak their mother-tongue. For the ordinary boy and girl the inflections and conjugations of the classical languages are simply a mill-stone around the neck,—English has decreed that they be “cast as rubbish to the void,” and our language should be taught as it is and not as if it were a Greek or Latin dialect. Its progress as a form of speech practically without inflection should be the important thing, not the minute dissection of the skins it has sloughed off, the organs it has reduced to innocuous desuetude. What makes English English outweighs the relics of its earlier days. Not the fossil grammar, but the living speech, is matter for education. One will write and speak his language better when his attention is given to that towards which it is moving rather than to that from which it has broken away. Some information about the bed-fellow in the next lodging-house is better than a plethora of detail about the one in the last.

Latin not the Basis of English. Latin has no more shaped the English tongue than Rome has built the Saxon heart or made the Saxon arm. English grammar is soundly Anglo-Saxon run through the sieve of a mind that never had a Latin bent. The good red blood of the vocabulary is Saxon too. After 1,500 years of subjection to Latin influence English is still English. Soldier, churchman, *littérateur*, statesman, scientist, have in succession been the advocates of Latin, but in vain. It has always been Mrs. Partington engaged in the same old attempt to turn the tide with a broom. From the unfathomable depths of the Teutonic ocean has come the mighty rush of waters overwhelming the Latin shallows and treating them to a bath of good Saxon brine. All the Latin in modern English is thus pretty well pickled. Before it went into the brine, too, every bit of Latin had the Anglo-Saxon meat-inspector's mark put on it. And a good many carcasses went to the soap-factory. The teacher of English needs to know that Latin has no skeleton-key by which to open the doors of English at will. To-day Latin can enter English speech only by the same door through which come Russian, Persian, Ameri-

can Indian, Chinese and Malay. It is quite useless for Latin to try to steal a march while the long line is waiting, for the heart and soul of English are very democratic, and, when competitors, Latin counts for no more than Choctaw. It is the English thought, not the Latin garb, that is master of the situation. The test is service to a living tongue of the twentieth century, not homage or shelter to the wandering manes of dead vocabularies, or unquiet ghosts of languages wearying of the linguistic Hades and seeking for some real live incarnation among the thoughts of man. Latin, like every other tongue, is clay in the hands of the English potter. And he has more than one wheel to shape it upon. Spelling, pronunciation, form, meaning, etc., all these turn beneath his skillful hand. Who would recognize in *jilt* the descendant of *Juliana*, or in *cab* the offspring of *caper* ("he goat")? Why if Latin be so indispensable to modern English, has it (or Greek) not furnished substitutes for words like these: *Boycott, tariff, gong, caucus, taboo, totem, tattoo, cannibal, Tammany, bazaar, boom-erang, hammock, hurricane, curari, guano, shampoo, cabul, mammon*, etc.? For the simple reason that the Roman and the Greek mind never saw or felt some of these things as we see and feel them, and our language is strong enough to pick and choose from the living, not borrow perforce from the dead tongues of earth. The classicists are shocked at the ease with which English *Sprachgefühl* discovers these words and at the difficulty they meet in getting their own book-made terms adopted. They forget that English has no grammar where-with to shackle any word. No armor to protect it, no ornament to deck it out with save thought only. To English the Latin and Greek arsenal of gender, case, inflection, conjugation, etc., is a sort of Nuremburg torture-chamber representing the Dark Ages of language when pious and bigoted literary inquisitioners sought to convert all words, all languages, into some sort of orthodox Latinity. But speech no less than faith, had its Luther. What a wail went up from the classicists, who claimed to be the guardians of "pure English," when the word *sociology* was coined and successfully floated. Their loud protests against hybridism in compound terms only emphasized the fact that neither of their boasted model-languages could alone furnish the needed expression, so English, scorning the grammarian's limitations, took part from each and the new word appeared to designate a new and important branch of the science of man. The heart of English is still English. Johnsonese is dead. Macaulayesque is moribund even in our high schools where it has so long found shelter. Paragraphing may occasionally galvanize the ghost and make it walk a little, but, save where the English manufactured by teachers of English

and written by men of science whom they have taught still lags superfluous on the stage, the English born of Latin imitation is on the way to decent interment. The greatest English of any century was written by one who knew "small Latin and less Greek," and the best English of our day by some who knew still less of both. If the teacher wants to see how English English can be, let him look at this little poem by F. W. Bourdillon:

"The night has a thousand eyes,
And the day but one;
Yet the light of the bright world dies
With the dying sun.

"The mind has a thousand eyes,
And the heart but one;
Yet the light of a whole life dies
When love is done."

Not a single word of Latin or Greek origin does this poem contain, and yet it seems to be pretty good English. And if the teachers would read the English Bible more and the Sunday newspaper less they would discover plenty more good English in which the Latin and Greek words are few and far between. The teacher needs to recognize that while Latin and Greek may add to the dictionary words that are there only by the mistaken efforts of men of science, who bury in such ceremonies the knowledge they have so laboriously acquired, they are but the "painted show," the real drama of life goes on in English,—it is the Saxon heart of English that is given "life more abundantly." Latin and Greek are incidents or accidents, not necessities, of our mother-tongue.

Full Use should be Made of the Evolutionary Aspect of English. No language in the world illustrates so well the development of human speech in harmony with the evolution of a great individual civilization. It has more than a thousand years of documented history from King Alfred to Goldwin Smith, from Caedmon to Kipling, from the oldest Saxon to the newest American. Here we have the whole progress of a language from the inflectional wealth of the Old English to the half dozen or more endings to which this has shrunk in the speech of today. And the verb has gained like the noun. Modern English believes in the preposition and the small particle against the long ending and the Latin verb. On every hand it has sought correlation with the world of thought, not with the form-land of the school-men. Language and literature alike are evolving to this end. Touched by Celt, Roman, Norman, and Frenchman, the spoken word and the written have progressed along paths peculiarly their own, and the giant figure of Shakespeare, no less than the speech of his people, is unique

among men. With the Celt and the Saxon English has sounded the depth of inter-racial conflict, with Englishman and Norman it has fought the battles of democracy and aristocracy, with the Tudors it has felt the emancipation of religion; later still it was with the evolution of the modern parliamentary system, as before it was present at its birth; and in the wake of New World discovery it has builded a Greater England over-sea, and circled the globe with its commerce, while multitudes in every continent and sea make it more and more *the* living language of mankind. All this the teacher of English should know, and as much of it as he can, he ought to teach. English as an object-lesson in human evolution is better than English shackled to the grammar and the dictionary.

The Democracy of English must be Recognized. Hitherto English has been taught as if it were an aristocracy for which youth (always so democratic) needed to be prepared. The core of a language is common to its men, women, and children,—children at play, women at work, men at their ordinary tasks, these are the makers and keepers of the speech that lives. Women, the guardians of the child, were the first shapers and transmitters of language. A few words sufficed the hunter, cunningly tracking the wild beast to his lair, or stealthily seeking the scalp of his foe. Woman, over the cradle, where life, not death, was inspiring her, caught innumerable sounds from the lips of infancy, and gave them place in the *mother-tongue*, which the laconic father was only too ready to accept. Of all things it ill becomes women-teachers to Latinize English; the Saxon heart of it is theirs by an inalienable birth-right. Since the very beginnings of our language the mother and her child have been together, and English is Saxon still. Take out of English but a single series of words (all woman's own by genial labor in the past),—*sow, sew, sweep, spin, weave, grind, wind, wash, bake*, etc.,—and what a void there is! And how many of the slang terms that ultimately find lodgment in the best dictionaries were coined by the child of the street! The teacher must cease to look upon English as something to be shaped and regulated for an aristocracy of men, and come to see that it is the tool of the democracy of men, women, and children, whose title to its use is far sounder than the decree of any pedagogic college of heraldry.

King Grammar must be Dethroned. By some strange accident the democracy of English is still subject to a king, whose tottering authority the great body of teachers, unable to break away from old traditions, chivalrously uphold. And this king is no Saxon monarch, but a tyrant of the books tracing his dynasty back to the days when the Latin school-men ruled supreme. What is needed is a good, healthy declaration of

independence and the relegation to the lumber-yard of the Latin grammars and their imitations. The teacher must see that English is to be taught as English, and not as if it were a Latin dialect. He must wake up to the real meaning of the fact that only by a supreme effort is Latin now used in the city of Rome itself, while a score of cities as important as the one by Tiber's side have sprung up in all parts of the world whose common speech is the once despised English. England once supplied oysters and slaves for the Roman emperors, now she has girdled the globe with a tongue, the record of whose thoughts and dreams requires a lexicon nearly fifty times as large as that which interprets all there is left of the prose and verse of her would-be Latin masters. It is to this larger democracy of the future, and not to the limited aristocracy of the past, that the teacher should swear allegiance. When, at the Council of Constance in 1414, the Emperor Sigismund was rebuked by the Cardinal Placentius for using a neuter noun as feminine he replied, "I am King of the Romans, and above grammar." And the way in which the various Romance languages have treated the neuter nouns they borrowed from Latin showed that they too were "above grammar," and indicates what they would have done further in this matter had not the school-men interfered. Four hundred years later a president of the United States (no less a man than Jefferson) went on record in these words "Where strictness of grammar does not weaken expression it should be attended to. But where, by small grammatical negligence the energy of an idea is condensed, or a word stands for a sentence, I hold grammatical rigor in contempt." But the users of English must be prepared to go farther than the Emperor and the President. And their poets point the way. Whitman in rude and Browning in more artistic fashion are the poets of democracy whose deliberate violations of grammar ask and need no excuse. The school-men may cavil and murmur as they please, but these prophets represent the future democracy foresworn of its allegiance to king grammar and speaking free men's thoughts as free men should. With such, the language shall come to its own, and thought, not form, be master of its destinies. The teacher should remember that while poets are akin to the gods, the grammarian is least among the sons of men. The poet thinks the thought of God after Him, the grammarian shackles the thought of man with fetters he has made himself.

Poetry must not be Made into Prose. Poetry is the greatest possession of man. All language was once poetry, and most of it would be now if it were not for the petty dissections of the modern grammalogue. In spite of the ancient philosopher who wanted to exclude them from his ideal republic the poets still

live, and the little children love them as of old. Poetry is as eternal as childhood itself. It will never die out as long as generation after generation continues to produce fathers and mothers and the never-ending chain of children links past, present and future into one. President Eliot would teach all,—religion, morals, civics,—by poetry. Men of science like President Hall are of like opinion. So, too, students of nature, like Burroughs, who hold that poetry itself is sufficient without the brand of the teacher upon it. They are right. Give the children poetry fresh from the hands of genius and of God. Let there be no tampering with it. Hands off grammarian and re-toucher! Of all criminals the worst is the teacher who wants the child-like thoughts of genius transmuted into his own adult commonplaceness. Paraphrasing is a sin against the Holy Ghost. It has done more than any other single thing to kill the instinct for good English. Its very name should be anathema. We have barrels of sermons, bushels of orations, and books innumerable treating of the birth of American liberty, but who does not turn to the poet for the best word of all? And yet a teacher will set a pupil to paraphrasing this holy scripture, for such it is. Such action is utter sacrilege. A teacher who demands this is worse than any savage or barbarian. Emerson's immortal hymn ought at least to be freed from the Cossacks of the school. Over Shakespeare's grave we read:

" Good Friend, for Jesus sake forbear
To digg the dust enclosed heare;
Blest be the man that spares thes stones,
And curst be he that moves my bones."

This of the dead body of the poet. What words shall frame the blessing and the curse for those who have to do with the living body of the poet, the part of him that can never die?

The teacher of English ought above all to know good English when he sees it, and to be wise enough to let it alone. It will sing itself into the hearts of the young without his organ of adulteration.

LIBRARY PROBLEMS.

By JOHN COTTON DANA, Librarian Public Library, Newark, N. J.

Gabriel Naude had charge of the library of Cardinal Mazarin and of the libraries of other notable people in the 17th century. When he was about 25 years of age, in 1627, he published a little volume which he called "Advice on the management of a library." This was at the beginning of his career as a book lover and librarian. Yet even at that age and before he had yet enjoyed the experience of gathering and arranging some of the most notable libraries in the Europe of that day, he approached his subject with a fullness of mind and breadth of view which are not often found among librarians. In the closing chapter of his little book he speaks of the proper purpose of a library. The acquisition, classification and general care of it he has duly described in previous chapters. "All these matters," he says, "having been settled, there remains to the completion of this discussion only a statement of what should be the library's chief end and aim. To suppose that after all the care and expense I have heretofore suggested have been given to the accumulation of many books and their proper installation, we may, as it were, hide all their lights beneath a bushel, may condemn all the brave spirits they embody to eternal silence and solitude,—this is to fail utterly to understand the purpose of a library. Of a library we may say, as Seneca says of Nature, that she 'desires not merely to be looked at, but also to be admired; that she would lose all the fruits of her labor, were she to exhibit her handiwork, so vast, so noble, so subtly complex, so bright, and so beautiful in ways so manifold, to solitude alone.' In vain would one follow the instructions I have set forth and incur the large expense I have recommended in the purchase of books and their proper establishing, if he have not in mind their consecration to public use; if it is in his heart ever to refuse access to them to the humblest who may have need of them."

These sentiments were uttered 275 years ago. They have not obtained very wide acceptance yet; because the preservative function of a library, for several hundred years so justly prominent, has persisted like an old, fixed habit, and made difficult the development of other functions which changed conditions demand.

All people are becoming readers. The newspaper, in the past three decades, has raised the number of those in this country who make use of print for recreation and information, from two or three million to perhaps ten million. There are among us at least thirty million more persons preparing to come into the ranks of readers. And every day the newspaper gathers more and prints more of all that touches life, and sells that more for less and less, and encroaches on the domain which the book and the weekly, monthly, and quarterly magazine once held for their own. Books cost less and less each year to make; writers increase in number both relatively and absolutely; and books of all kinds, from simple restatements of trivial facts to careful announcements of prolonged research, from silly verse to masterpieces of imaginative writing, rush through the press in an endless and swelling flood. Formerly, save for oral tradition, only in rare and costly books were to be found the means of culture, and the secrets of the arts, trades and professions. Now the classics and the literature of information are to be had almost for the asking. Libraries designed to serve the needs of many decades to come prove too small before they are fairly occupied. Books overflow the shelves; readers crowd the floors.

In the great city, as well as in the small towns, donors, trustees, librarians and architects seem not to have faced these facts of modern life in the field of paper, print and readers, and build after old precedents. They accumulate books as did our fathers when the material, the paper, print and binding, of the book itself was rare and costly. They provide for the few who read forty years ago instead of for the multitudes who read to-day, and they administer as if library science were an art preservative instead of an art descriptive, selective, directive and distributive.

Much has been done, to be sure, to meet the new demands this increase of books and papers make upon us. Library methods have changed. We need go back only twenty-five years to find the original, natural and in its early days entirely just view of a library's proper character and method in general acceptance. The librarian's art was then an art preservative. Books were to be kept, kept jealously, and used carefully, and only by a selected few. Library buildings were storehouses. The space in them for books was relatively generous, that for readers or users of books relatively small. Lofty rooms with encircling galleries satisfied the demand for show. The questions of heating, lighting, ventilation and shelving were secondary and unconsidered, or not well considered. The coming tide of books and the coming hordes of readers were unforeseen, and all buildings were designed to invite and encourage a growth

they could not satisfy. Many a city, town and college in those days built for a decade or two only, when they believed they were building for generations. Things are better to-day. But few yet realize the full extent of the changes time has wrought in the world of books, and very few library buildings have been erected in full realization of what the changed conditions demand.

It is impossible to draw up general rules as to the details of library construction. The factors of funds, location, adjoining buildings and special needs, all must be given weight in each individual case. A few general principles are, however, of almost universal application.

Libraries always grow faster than their communities suppose they will. Probably nine out of ten of all the library buildings put up in this country have already proved to be too small. Books will increase in number more rapidly each succeeding year. Popular education and cheap newspapers are rapidly increasing the number of readers and of library users in every community. The first general rule, then, is, make the building as large as the funds permit. Defer decoration if need be; but get abundant floor space by all means, and provide for extensions if possible.

The public buildings in this country which are over twenty-five years old and are still fit—in location, style, construction and arrangement,—for the purposes for which they were intended are very few. Do not, then, look forward to great permanence for your library building, and do not think it necessary to make it absolutely fire-proof at the cost of size and convenience. Books can be reasonably well insured. Save in a few large collections a total loss is not a vital thing. Build substantially; but do not imagine your structure is for all time, or even for a hundred years, when twenty-five will probably find it out of date, out of place, and a burden.

A library is a place in which many people are to read every day. Give them all the light you can.

Library methods have entirely changed in the past ten years. We may be sure they will further change in the next twenty-five. What the changes will be, no one knows. The buildings adapted to the methods of ten years ago are to-day out of date. They are hindrances to development and to good work. We may be sure that buildings especially adapted to the methods of to-day will prove to be poorly adapted to the methods of 1925, and the closer we fit them to present needs by permanent construction the more out of date they will prove to be as new needs arise. Therefore, make your building adaptable to new conditions. Provide all the well-lighted floor space you can, and let it alone. Avoid permanent partitions. Do not be

deluded into surrounding each spot on which a certain kind of work or reading is to be carried on, with a wall of brick or stone. Why should one who reads the "19th Century" be separated by a huge light- and air-excluding, distance-increasing partition from one who consults an encyclopedia, or examines a catalogue, or studies engravings? The need of partitions to keep out noise from other parts of the library is much less than most suppose. Time will try all division walls inside your library, and prove most of them wrong. Leave them out, and get better air and light; greater ease of administration at less cost; greater comfort for the public; more available floor space—two rooms each 20 feet square are not nearly as large in actual utility as is one room 20 x 40 feet,—and an elasticity, a responsiveness to future needs, which the next generation will thank you for.

With this no-partition rule goes the rule against fixtures. Complete your interior. Then add the fittings and cases as they are needed and move them, when occasion arises, as time goes on. Fixed desks, fixed rails, fixed book cases, save perhaps in a stack, are obstacles to comfortable administration. No delivery desk was ever built right the first time. If it can be easily changed this is no harm. The books outside the stack will increase in number; so will your readers. This increase will compel the shifting of cases for the former and of tables for the latter. Make all furniture in small pieces and all movable.

Put as much as possible of the floor space on one level. Stairs are bad in any library. The smaller the library the worse they are. They mean additional attendants; they add to the daily labor; they are not grateful to the public.

The essential things, then, in library construction are maximum of space, on the fewest possible floors, good light, a minimum of partitions, and no fixtures. Many libraries have been built in recent years; probably not a dozen among them conform to these conditions. This is, in part, the fault of librarians, who have not realized the future of their own calling; in part, of trustees, who have valued things they thought magnificent, "tasty," "elegant," and imposing before the needs of their constituency; in part, of architects who let convention and precedent rule in interior arrangement as well as in exterior design. The sins of the father are visited on the children in such buildings as those of Boston and Columbia, which by their very cost and prominence will strengthen the evil determinations of many an architect and board.

The old librarian was often master of his books. He knew them, every one. Each stood for years in its accustomed place and was in the librarian's mind like an ancient landmark.

But the incoming tide increased: the old librarian passed and his knowledge went with him. Careful lists were needed. As lists grew they became complex. Rules of cataloguing arose and flourished. The need for grouping on the shelves books of like nature was soon apparent. Classification became a necessity. Its complexity increased. And the classing of books and the listing of books, and the listing of parts of books and the printing of these lists, which were in fact indexes to whole libraries of books,—seemed imperative, and libraries exhausted their resources in printing catalogues which were out of date before their proofs were read, and projected card catalogues which time may prove to be bibliothecal Frankensteins.

Yet the development of this inventory-and-index idea in library management was natural and proper. It has been of great assistance in bringing libraries under control. We look forward, however, and see that we are not yet at the end of the matter. New difficulties born of the very profusion of books, promise to arise. Its many books and its expanding catalogues threaten to obscure our vision of the library itself. In twenty years, libraries of one or two million volumes will be considered as only in their infancy. Within the lifetime of some of the younger members of the profession, libraries of a few hundred thousand volumes will be as common as were those of a few tens of thousands a quarter of a century ago. The library of a million volumes will need for its indexing, under present methods, five million cards.

Without going into details, we can see how cumbrous will be a catalogue of this size, no matter how carefully it is arranged. Its form is abhorrent to many practical men who make use of books. The ignorant can't use it, the learned don't need it. It is a tedious and irritating task to finger cards. In a large catalogue the entry of the latest book, and the vast majority of those who use books want first of all the last book issued on their subject, is lost in a vast desert of useless references. Men of moderate intelligence, occasional visitors to the library, are helpless in the presence of the catalogue and turn in despair to the attendant, who often depends himself more on lists and special bibliographies than on the catalogue. The student, versed in books, hunts out his own authorities and asks of the catalogue little more than the information that the library has or has not certain volumes. He perhaps can go to it for a few of the first steps of the investigation he is about to set out upon; but having taken those first few steps, he wishes to go direct to the books themselves. In fact, few men who wish to consult books on a certain topic care for more than guidance to the books. No card catalogue can give

them the information they need. They wish the books themselves; the foot notes and indexes in the books themselves. They go from point to point in their own way, each consulting his own particular needs. The catalogue for them is hardly more than a starting point. It is not much more than a means of laying hands on a certain book when once they have learned that that certain book is the one they wish to see. The specialist finds more helpful than the catalogue a few minutes conversation with some one connected with the library and posted on the literature of the subject he is about to investigate. Such a person in a general way outlines the range of the library's resources, and puts him in touch with the subject if he is not so already, and indicates the location of the books he may wish to consult. Each year, as the output of books grows larger and as they become cheaper, the number each library can and must buy will increase and the annual additions to the cards in the catalogue will become greater in number. This will add to the expense. If the Library of Congress succeeds in its admirable plan of printing correct cards, purchasable at a small price by all libraries, this will reduce the original cost of the catalogue; but it will induce many libraries to add rapidly to their number of cards and so will add to the cost of their storage and arrangement. The labor of sorting a thousand new cards into their proper places among a million others is immense. This labor increases for every library each year and will become for many small libraries a burden larger than they now anticipate.

Nor is this all. Not only is the catalogue becoming an alarmingly expensive creation; not only is it growing more cumbersome to the user; not only does it contain each year a greater and greater amount of chaff,—its cards referring to the dead books,—relatively to the few grains of wheat,—its cards referring to the live books—; but also it becomes as it grows an institution more and more difficult to revise. In most cases it must in time be revised. Librarians in hundreds of towns and smaller cities—and I believe in most large cities also—will soon find their shelf-space full. They will keep on buying books, more in number each year. They must make room for them. They will pronounce judgment on many of the older volumes and say that for their library those books are dead. They will give them away, sell them or burn them. But the dead books are entered in the catalogue, on the shelf-list and in the accession books. And the labor of removing from the catalogue and its allied lists all traces of the books pronounced dead and sent away is prodigious. Yet it must be carried through. I am not attempting to solve the problem I am presenting. I venture only to sound a warning.

President Eliot, of Harvard, says it is time for libraries to begin to discriminate between the living and the dead among books. He asks for new methods of treatment. It is well that one who speaks with authority says what many have been saying for several years. It is not too soon to attack this problem now, while there is still time to give it due consideration.

Add to President Eliot's appeal for a change from the hoarding process to the method of elimination the bold statement by President Harper of Chicago University as to the place the library is to occupy in the educational institutions of the future—and his prophecies apply with equal force to the public library and its special community—and you have ample justification for the distinction already made in this paper between the former function of libraries—the preservation of books—and its latter day functions, of evaluation, selection, direction and distribution.

President Harper says: "The library and the laboratory have already practically revolutionized the methods of higher education. In the really modern institution, the chief building is the library. . . . The librarian is one of the most learned members of the faculty; in many instances, certainly the most influential. . . . The library, fifty years ago almost unknown, to-day already the center of the institution's intellectual activity, half a century hence with its sister, the laboratory, almost equally unknown fifty years ago, will have absorbed all else, and will have become the institution itself."

Public as well as university libraries, as they develop into the influential institutions which President Harper says they are to become, will change much from what they now are. Just what are the changes they will undergo, it is impossible to prophesy. They have been indicated, we may reasonably suppose, by the changes they have undergone in the past few years. Their buildings, as already suggested, will become simpler, better adapted to economical administration, more easily modified to suit new needs, and more readily enlarged for increasing use.

Cataloguing methods will be simplified and cheapened. Some way must be discovered of making at least an author index which can be more easily kept up to date, more easily and more quickly used, and more readily changed by the dropping of entries of books past their usefulness. It is probable that we shall be able to return to printed broadsides for this special purpose, though the card catalogue in its present form may not go out of use for the index of authors, titles and subjects.

Smaller libraries will confine themselves to keeping up small working collections, chiefly of the more recent books, constantly relieved of the burden of dead books, and carefully

indexed. Historical material will be confined in them to the best books on the subject at large and to a very small portion of the local field. The *omnium gatherum* historical method now advocated for the libraries of small communities and practiced by many of them, will have to be abandoned. Material will, by this method, soon accumulate beyond all possible control, and, being uncontrolled, will be of no use. Historical libraries will have to struggle with this problem of over-much material. Somehow the selective process even here must be put in operation. The libraries of a few great cities can, and probably will, go on accumulating at large for some years to come. It is well that they should. A wise winnowing process can here be discovered only by much practice on large masses of material. But before long they too will find that a book is not a book if there is nothing useful in it; and that it is better to have the best well in hand, than a mixed mass of live and dead, unorganized, material.

As President Eliot has said, the problem of housing and indexing is already a serious one at Harvard. It is not less serious in other large libraries, although the fact is not often admitted.

The plan suggested at Cambridge and Boston is one of the possible solutions of this problem of storage. This is, to erect in some place outside the city, where land is not valuable, an enormous warehouse, fireproof, simple, inexpensive, capable of indefinite extension; and to consign to it the dead volumes from all the great libraries of the region. A difficulty here arises which has already been mentioned, that of so treating the catalogues of each library contributing to this warehouse that they will show that the books removed are no longer in the library proper, but in the warehouse. This difficulty is one which, under present methods, will grow greater with each succeeding year, as the catalogues of each library increase in size and complexity. Another problem is, how to arrange the books in the warehouse so that any given volume can be found after it has been learned from the catalogues in any of the contributing libraries, that it is actually "in storage." If the coming flood is as great as it promises to be, and if ways of making, handling, storing, revising and consulting card or other catalogues, much less expensive of time, space and material than those now in use are not found, it will perhaps be necessary to cast aside all records of the books which have been pronounced dead and relegated to the storage warehouse, and treat those thus stored in the simplest possible manner,—which is, to arrange them in one alphabetical series by authors. This method would discover duplicates; could be carried out by inexpensive labor; and yet would

leave the books accessible to the occasional inquirer with little loss of time. The libraries proper, the efficient institutions of President Eliot's desire and President Harper's prophecy, would find themselves relieved of a tremendous burden by adopting this selective process. They could soon become far more helpful to the ordinary student than they can hope to become as long as they are struggling under the weight of books rarely used and of unwieldy catalogues.

The method of administration of the active, up-to-date, clean-cut working library of the future is still somewhat in question.

This working library of the future, so far as we can foretell its character, is in a building which is well-lighted and can be easily readjusted, rearranged and extended to meet new conditions. Space for readers as well as books is ample. Its stack or storeroom is planned to hold the least used books. It keeps its main working collection together, not scattering it in branches in public libraries, or in department buildings in university libraries. Branch or departmental libraries will duplicate or supplement the main library, not divide it. It is a working library, not a museum of antiquities, curios or art, and it does not invite the sight-seer. It is kept up to date, as well by weeding out of volumes past their usefulness as by the purchase of the latest publications. The most used books are most easily accessible and most fully catalogued. The latest reference lists and bibliographies on all subjects which the collection covers, are provided. Titles for purchase are selected with great care; utility, and immediate utility, being considered first, rarity, beauty and prospective value last. Rules and regulations are few and flexible. That the books be used is considered of the first importance. Museum pieces of whatever kind are not admitted to the library proper, have no place in it, and hence give no occasion for close guardianship of the shelves.

Card indexes to the proceedings of societies, to scientific journals and other publications are now being made and published. One which covers the field of zoology, published in Zürich, Switzerland, already contains over 60,000 cards. These indexes are expensive. To their first cost has to be added the cost of keeping and of the addition of new titles as they are received. In the future few libraries will find it possible to buy and keep up more than a careful selection of such lists, only those adopted to their own peculiar needs. The burden they will become in a few years will be clearly recognized. Also, the ease with which the knowledge they can impart can be transmitted from one library to another will be more fully appreciated. In this matter, as in book-buying and book-weeding, co-operation between libraries by inter-library loans will make it easier for each

community to see the advantages of specialization, and of small collections kept well in hand.

The free public library of to-day does not occupy the field of book-lending as completely as it supposed it did, even a few months ago. The Book-lovers' Library has demonstrated that many people in every community will borrow books of certain classes, even at some personal expense, if the opportunity is favorable. The free public library evidently has not been offering the favorable opportunity. It is very doubtful if it ever can, or should. It will, in the future, concern itself less than ever with the circulation of light fiction. It will find it can use all the funds it can obtain in the promotion of reading of a more serious character, and in other work proper to it. It will reach out for the mechanic and the artisan—it has never yet had a hold on them,—and will occupy itself more and more with the work of helping parents and teachers to train the young into the habit of reading good books, and into a working knowledge of books and journals of the informing kind.

By co-operative effort, among libraries, as illustrated by the work Mr. Geo. Iles is doing and has done, most books as soon as published, will be evaluated at the hands of experts. The critical and expository notes thus obtained will be made generally available. Less weight will be given to the completeness of bibliographies and more to their annotations, and the skill they show in selection. Save for the maker of bibliographies, who has completeness for his only aim, a complete unannotated bibliography is of very little use.

In book selecting, in narrowing his library's field, in the casting out of dead stock, all with the help of expert advice, the librarian must be arbitrary. But in the use of the books by the public in a public library, by the students in a college library,—here he will remove all barriers. The simplest and most flexible rules, based on the facts that the public owns its own institutions, and that most men are honest and considerate of one another, will enable him to see that all claims are treated alike. Suggestions, criticisms, advice, demands, will be invited from all. Public officers are public servants, and public institutions are supported to satisfy the public's needs,—these good old maxims will be kept always in mind.

Librarians have passed through the repository stage, when they did little more than collect and save; the identification stage, when they devoted themselves greatly to classifying, ticketing and cataloguing their books; the memorial stage—which we are unhappily still blundering through—when they surrendered themselves to the task of erecting Greek temples, Italian palaces and composite tombs; the distribution stage, wherein they find themselves outstripped by commercial ven-

tures which saw that the novel had become as much desired as the daily paper; and they are just entering upon the critical, evaluating and educating stage. They are just beginning to find themselves, as President Harper's words testify. In this present stage they discover that they are, or may become, the center of many of the forces in their respective communities which make for social efficiency and civic improvement. The modern public library is the helpful friend of scientific, art, and historical societies; of the educational labor organizations; of city improvement organizations; of teachers' clubs and parents' societies and woman's clubs. At the library should be the books and journals to which all these institutions must come for their guidance or material. Here should be rooms suitable for their gatherings. Here should be a spirit hospitable to them all; knowing what is in books, but keenly alive also to all that is best, all that is striving for helpful expression, in the people who own those books and hope much from them.

NORMAL SCHOOLS, ESPECIALLY IN MASSACHUSETTS.¹

By G. STANLEY HALL.

From Commissioner Harris's last report we learn that in 172 public normal schools of the country, but 26 % of the pupils are male ; while in the 134 private normal schools, 53 % are male, but private schools are diminishing, and in both, the progressive feminization is marked. From Secretary Hill's report, just issued, we learn that in the twelve normal schools of this State there are 42 male and 79 female teachers, and 127 male and 1,642 female pupils, a proportion less than the 10% male teachers in the State, and that in the last year reported only 7.18% of the graduates of these schools were males and 92.82% were females. The males are thus a vanishing and already almost negligible quantity, a fact that must be borne in mind throughout. We also find that, while in the nine years ending in 1901 the per cent. of normal graduates teaching in the State has risen from 37% to 45%, some of the Western States, according to Superintendent Jones, have already over 50% of normal trained teachers.

The first need of the Massachusetts normal schools is, in my judgment, inspection. It is a cardinal axiom of public as of private charity that grants should not be made without some efficient agency to follow them up, to see and show the public, which gives, that the best results are attained. In England educational grants are conditioned upon thorough-going tests. This, the normal schools in this State lack. Each, as is well known, is practically under the control of two members of the State Board of Education. In their reports, we are told of one that the faculty "constitute an enthusiastic, well trained and equipped teaching force under able leadership." "The work of the past year merits approval." We are told that another school "stands for the incitement of its members to true living, for the inspiration of its students with the spirit of the true teacher," and for other noble ideals. Another "stands for harmonious development." In another there is only "continued harmony, prosperity and efficiency." Another in all its

¹Address before the N. E. Association of Normal School Teachers, Boston, May 23, 1902.

purposes and plans "is entirely satisfactory," etc. The committee as a whole states that "so far as general legislation to determine the scope and ideals of public education is concerned, there is little left for Massachusetts to do; the grander outlines of its policy are well settled." There are statements of wants and needs for material enlargement, but no word of criticism and no attempt, either by the board or its normal committees, of any independent suggestion. In a word, the State Report,—this part of it,—is much like that sometimes made by the trustees of private colleges who are all graduates of it, jealous for its glory and with neither time nor disposition for criticism.

Now I believe that the best normal principals and teachers in this State would welcome real inspection and could afford to do so, though it involved some of the faithful wounds of a friend. I believe that in this respect, as in others, they would like to be really public and not private institutions, and I am certain that they would benefit thereby. The State universities of the West are often severely and publicly arraigned by members of their Board of Regents. Many public and private colleges appoint outside Boards of Visitors, who attend recitations and submit printed reports. High schools have been greatly stimulated and developed by college inspection, and all the strong influences that, since the report of the Committee of Ten, they have felt from the college, which for a decade has been so active in suggesting methods and even dominating the work of fitting, an agency that I believe has now finished its work for good for the present in this region.

If we turn to the reports, catalogues, or other statements issued by the normal schools themselves, we find both in this State and in the country an immense difference with regard to information given to the public. A few print annual statements of sometimes nearly two hundred pages, explaining the purpose, describing the course and methods in detail for each class, with the text and reference books used, and the standpoint from which the work is done is explicitly defined. In others the statements are of the vaguest, briefest, and most platitudinous character, with not a single text-book named and as few details as possible, as if with a secretiveness suggesting timidity lest a dashing critic like Burk should arouse a new shudder.¹ I have sought in vain to find how many of the teachers in our State normal schools are graduates of colleges; how many are Masters of Arts or hold the Ph. D. degree, and I doubt if the Board of Education is strong enough to make this inquiry and publish

¹ See his two articles entitled: "The Training of Teachers," "The Old View of Childhood and the New," *Atlantic Monthly*, Oct., 1897, Vol. LXXX, pp. 547-561; and Normal Schools and the Training of Teachers, *Atlantic Monthly*, June, 1898, Vol. LXXXI, pp. 769-779.

the results, as college catalogues now often print the academic career of each professor. All this is done with normal schools in other lands. The educational statistics of the attainments of teachers of normal school faculties are fundamental for any intelligent discussion of the theme assigned me. Massachusetts has a few men who could inspect the inside work, methods and matter, and not merely the building, statistics and outer mechanism of each school, if they were given the right to ask questions and receive answers. I believe such inspection would show in our normal schools greater defects and also greater excellencies than are generally known. Indeed, my own impression is that we have, in this State, some of the very best men and women, methods and work, to be found in the training of teachers anywhere, and also some of the very worst.

I hold that some study of the human mind and soul is as essential for the training of teachers as acquaintance with wood and iron is for engineers; soils and natural fruit, flowers and trees for the student of agriculture; or a knowledge of ores for the miner, etc., and this is the general consensus of all educators I know in the world save two, and they have in mind a very special type of philosophy or psychology which I entirely agree that the teacher is better off without. First, I would exclude, save by way of incidental reference, nearly every definition or classification of human powers, and I would not teach what catalogues sometimes specify as "fundamental principles," "theory of mind," "the form and limits of education," "complete analysis of the art of teaching," "the philosophy of education," "the problem of freedom vs. necessity," "the nature of reality," "the relation of the soul to the body," "ultimate ethical theories," "metaphysical speculation," "materialism vs. idealism," "outlines of human knowledge," "the classification, correlation and co-ordination of the sciences," which even Comte and Spencer have not satisfactorily solved and which is constantly shifting and modified by every new discovery, *e. g.*, in the relations between physics, chemistry, astronomy, geology and biology. I would have little study of the brain unless it is well done by one who treats it with some degree of mastery; no history of philosophy save what is incidental to the history of education; little laboratory psychology save tests for defects of the senses, for motor powers, etc.; a little, but not too much anthropometry; very little logic—inductive or deductive. Some of these things might have a small place in the training of secondary teachers, but not of those for grammar grades.

Psychology is too vast a field for any one man or even university department to master now. Nevertheless, a certain

portion of it is the key to the teacher's work, and more than anything else tends to make it professional, so that in the language of a vigorous Western normal catalogue, psychology is the Blackstone of education. What should it be for the normal school? I reply, first of all, it should base on hygiene with something of air, light, heat, posture, and nutrition, as related to buildings, rooms, length and method of teaching; each pupil should learn how to detect abnormalities and defects here, and there should be apparatus to this end, and perhaps health books kept, as in some parts of Germany, for each pupil. The kindergarten should by all means be included and Froebel's letter should not kill his spirit. The child at this age needs not a metaphysician either in a state of muddle or clairvoyance about symbolism, and the universal nature and laws of mind, but the teacher should be a nurse first of all competent to be the defender and protector of the health of the child's mind and body. This is no degradation, for the training schools for nurses in this country to-day require far higher conditions for entrance, longer term, and more copious instruction, than do kindergarten training schools. Then there should be something of muscles, which are the organs of the will; the forms of motor education and the psychology of play. Habits—good and bad,—their mechanism and place of drill, is a rich and fundamental chapter. Closely connected with this comes memory, the psychology of which is practical for every day and hour of school work. Imitation, which a recent writer thinks the most comprehensive view point for surveying the whole field of soul-life; association, which for generations was almost the only philosophy the English had; attention, so closely related to the will, if not identical with one form of it; the imagination, the organ of all that is absent in time and place and of all the future and the past as well; and perhaps most of all important for the teachers of young children, the psychology of the feelings, beginning with pleasure and pain so related to hunger and nutrition, passing on to fear, remembering that Aristotle defined all education as learning to fear aright, to love, to rightly place which is the burden of the New Testament, anger, pity, sympathy, and finally interest, in a way which Herbart's abstract schematization knows not of; perhaps something of the teaching instinct, which is only an enlargement of the parental:—these are the heart of our new psychology, which in its wider range includes the whole of philosophy. They are its keys; are closest akin to the tact, taste and common sense in which psychology has its roots. These are more easily taught perhaps to girls than to boys, because the former are less specialized and more generic, nearer the race, richer in intuitions, and by nature,

if unspoiled by abstractions, far nearer the life of the child. All this matter, too, should be taught concretely, objectively, by a natural history method, with abundant cases, and with very little that is formal, with little schematization or definition. Much of it lies so near the normal soul that once taught by the easy way of hints, it is never forgotten; and personally, I should add a chapter on heredity and its evolutionary aspects. This kind of psychology is already, I infer, more or less developed at Worcester, Fitchburg and Westfield, and perhaps elsewhere in this State. It is full of promise for the future, not only for normal, but for academic work, and there is no part of psychology where the results of the latest research are more easily intelligible to the novice or more immediately practical in the school room. France, *e. g.*, which has the best and most comprehensive system of agricultural education according to its Minister's last report, was decades in learning that it need not teach systematic chemistry and biology to intending farmers, but must select from these vast sciences—basal for so many other things—just those elements immediately connected with soils, fertilizers, crops, domestic animals and their diseases and parasites, that were most closely related to farm industries. We should imitate this wisdom in teaching philosophical subjects in the normal school. We should neither turn out the child with the bath and teach none of it, like one of the State normal schools in Pennsylvania, nor hover in vagueness and uncertainty like Salem and Framingham, or linger in antiquity like Bridgewater. First and chiefly, we should remember that we are not teaching the psychology of the adult mind, which at its best works logically, but the genetic philosophy of the young and growing mind, where perception, intuition and spontaneity are at their very best and the powers of introspection are weakest. This teaches us due respect for the child to whom, as the old proverb has it, the maximum of reverence is due. It teaches us to discriminate between the wide range of individual differences and capacities from sub-normal and defective to budding talent, and thus will tend to make the school, as it always should be, a life and career saving station.

Pedagogy or the doctrine of education is chiefly applied psychology, and without the latter lacks basis; but it includes various accessories, such as government, discipline and school law, on which little time need be spent. Organization, too, should be chiefly illustrated in a model school and never raised to the dignity of a course, because it can so readily be condensed. The mapping out of school curricula is a theme of profound importance, but should not have very great space or time

given it; still less should the vast problem of the organization of sciences, the relations between which—*e. g.*, between biology, physics and chemistry; between physics and astronomy—are constantly changing. The connections between history and literature, between geography and history, need not be dwelt upon to any bright youth; while educational values—a theme very tempting to platitudinarians—are elements yet very indeterminate to the expert. I have looked over many textbooks on these subjects, but, though some are pretentious and elaborate, form enormously outweighs content.

To my mind the greatest practical errors with which normal schools can be charged, at least in the past and I fear to some extent in the present, are designated by the word, methods. This work often means dissection of the large living wholes, which children love, into elements which they abhor. It involves over precision, premature accuracy, verbal definition, logic chopping, formal steps, and eternal analysis and over explanation. Said a bright child, "I am sure I could understand this if you only would not explain it." A bore is one who expatiates at tedious length upon what you either know already, or if given the right handle, could apprehend in an instant. It often slows down the rapid impetuosity with which the mind storms its way to the center of things. The chief evils of excessive method maceration are—first, it mortifies and blunts the natural rapid intuitions—the best things in the mind. It drags thought, that ought to fly, down and makes it crawl on the ground. It often involves ignorance of the best that is in childhood and, therefore, robs it of much of its attractiveness. It tends to force the brief moment of genius, which almost every child has in some field, to a slow senescent pace. Secondly and perhaps worst of all, excessive analysis tends toward a pedantry of method which shields ignorance from its natural consequences; makes it complacent and self conscious; and gives a satisfaction that tends to arrest of growth in the teacher, because it whips up his modicum of knowledge to deceptive proportions, like the mediæval barber's apprentice, who was dubbed a master workman when he could make two ounces of soap into two barrels of lather. The over normalized teacher is always prone to have a scholarship or real knowledge inversely as his methods of teaching, because by demanding a predetermined way of work he exhausts the pupil, so that, as Plato said, there is only a wind birth and no true parturition of soul. Form should be always subordinated to substance instead of being exalted above it, and we grownups have almost lost all knowledge of the enormous receptivity and assimilative power of children when they can follow their ap-

petites and satisfy their curiosity in their own way instead of in our way. The weary morselizations of pedagogical rudiments, the arid wastes of short steps, easy methods and logical sequences, represent too often the second childhood of senility in knowledge than the golden dawn of childhood with its power of divination that we have lost.

Next to psychology, the heart of professional normal teaching, I believe, should be the history of education. This, rightly taught, gives professional spirit, high ideals and devotion to this perhaps most philanthropic of all the pursuits of man; but not only that, but it has a culture value in itself, for all which I believe unexcelled if not unequalled. There is a sense in which the history of the world is the history of its great teachers, religious as well as secular. The soul of the normal teacher should be inspired by the great heroes, whose names are landmarks, from Plato down. This history is indeed philosophy teaching by example; these men are often the very best expression of the aspirations of their age. These things enter and live again in the soul of the young teacher. I have heard several normal principals in Germany teach this subject in a way which I wish I could illustrate, and will try.

Somewhat as follows was the way an eminent normal principal in Berlin, whom I have often heard, would have introduced his class to the study first of Pestalozzi and then to Fichte.

"One hundred years ago a remarkable story appeared in Europe. It was prolix after the fashion of that day and is now rarely read. Yet its characters and action were as real and as new in fiction as Kipling's best, while the author's passion for moral and social reforms was as all controlling as Tolstoi's. It was a tale of homely life in a Swiss village, of peasants who beat their wives, and of dirty children who stole potatoes, and only on gala days had the cream left on their milk. The good preacher was growing duller, the doctor more quackish, the schoolmaster more mechanical. The squire, who also kept the beer house, was getting every one in his debt and extracting and using for his own wretched ends all domestic secrets. There was the gossip, the hypocrite, the liar, the fool, the sot, and everywhere increasing superstition, scandal, intrigue and vice.

"But there was one good woman in this dismal hamlet, Gertrude, the mason's wife, who taught her children cleanliness, courtesy, maxims, hymns, prayers and simple industries with such devotion and success that the neighbors begged that their children might come too, and soon began to come to see for them-

selves. An old nobleman visited her home-school and found a real vocation in starting a school himself. The pastor grew interested, and realized that his sermons had been dry, and began to preach in earnest. The spirit of home life and mutual improvement appeared. The beer house ceased to be the center of the village life. A few citizens met weekly to discuss the larger educational questions of public and private weal. At length a Royal Commission was sent to study Bonal, which had become the thriftiest village in the realm, and reported that they had discovered here the true principle of reform, prosperity and universal government in education, with Gertrude's school at the root of all.

"For Bonal is the world. All its degradations are but the natural offspring of ignorance, and Gertrude is the good teacher by whom alone society, State and church can be regenerated. This tale of Pestalozzi's shows us what a simple and unlearned man can do if he is in earnest, and if his cause is great. It was read everywhere; it was wept over; royal personages came to see the author, and gave him presents and decorations, and many greater men than he have since lit their torches at the fire he kindled."

Sixteen years later, in 1806, the power of Prussia was shattered at a blow by the battle of Jena. Its army was swept away; its allies, industries and trade gone. The country was impoverished and exhausted and its capital garrisoned by French soldiers. Its soil had never been fertile nor its spirit practical. Its military situation, with strong nations on all sides, was the worst in history and its record had shown more discord than unity. The race had never felt such humiliation and the future had never seemed so dark. But the German stock was still vigorous and on every hand the cause of this unexpected collapse was explained. Scharnhorst began to plan a comprehensive reorganization of the military system on its present basis. Stein set about reconstructing the land laws and the status of the peasants. Jahn founded everywhere his patriotic *Turner* societies and preached again the gospel of ancient Greece, that only strong muscles can make men great and nations free. But the key-word which guided and unified all was spoken by Fichte in his so-called "addresses to the German nations," which were given in Berlin every Sunday evening for an entire winter to large audiences of the best classes, with Napoleon's sentries at the door, and his spies scattered through the hall. He said in substance this:—

We have yet left us German bodies, large, strong and healthy to the core, a marvellous language all our own and not agglomerate of many tongues like English, and a pure

blood never mixed with other races. We have wrought out the Reformation, the greatest task the human spirit has yet achieved, and our ancestors call to us not to let the work they died in doing be in vain. We carry the light and the hope of the world. If we sink, freedom and humanity sink with us. There is one plain and only way for patriotic recreation. It is not primarily by armies or legislation, but we must rise like Bonal by the slow and sure processes of national education. We must live for our own children, training their bodies and minds as was never done in the world before. Schools have been the one product in which the German spirit has already excelled. We have set the human spirit free, have preached, taught, lived, and believed in ideas and ideals. We must make education our supreme task; our duty of duties. We must realize the platonic republic where the wisest ruled and education was the chief problem of statesmanship. This policy must be our destiny. Our leaders must be priests of Truth and in her pay. They must think fearlessly in all directions; must investigate and discuss, do and suffer all in the world's great holy cause of science and learning. To this end he invoked all ranks and classes. For thus not only the united Fatherland, long hoped for, long delayed could become real, but men of a higher type and order of existence than had yet appeared would be developed.

Thus Fichte, idealist and enthusiast, spoke and was heard as no man had spoken or been heard since Luther. For him education was the one divine cause in the world; a new dispensation of religion itself. In accordance with his conceptions, but by far more practical men than he, the University of Berlin was founded and a national policy was defined making education the test of all. Along these lines the Fatherland has become the most effectively governed State, and its army the strongest since ancient Rome. Just as the Reformation slowly pervaded other lands so Germany has set the educational fashions for most nations of continental Europe, not to speak of Japan and South America. Her methods and ideas have been especially transforming since the war of 1870 made manifest the strength this policy had developed in half a century. Her conquests are now spreading to the world of industry and trade, and France has shown her true greatness by wise imitation of her conqueror.—*Germany is Bonal 'writ large.'*¹

Something like this, I fancy, would have been the "method" of this Principal of the Berlin Training School, and then there would be discussions, details, references, reproductions, and

¹ See *Ped. Sem.*, Vol. I, No. 1, pp. 1, 2.

so through the whole year for a year of five hours a week. These young teachers went out full of their mission. They were potentialized to do their best and worthiest, and feeling that their cause indeed was the chief one in the world.

I suppose there is now an almost universal agreement that at the heart of every institution for the training of teachers, there should be a model school, and that the time has gone when young teachers learn their trade by practicing on each other, but I believe that the best also agree in feeling that nearly all present plans are more or less tentative and provisional, and that the solution is much further on. I think the best see, too, that a model or ideal school can never be to any great extent a practice school, but that the conceptions of the two are more or less incommensurate if not opposed. As it has for many years been the dream of my life to organize one such school—a dream I fear never to be realized—I will venture at this point to break a little from present conditions and suggest an ideal.

Beginning with ideal grounds and buildings—patterns of cheapness as well as of hygiene and convenience combined from the best I have ever seen or heard of—I will start with the kindergarten building, which must be spacious, mostly on one floor, with ample sheds and far ampler grounds and gardens, and with the best personnel that could be had; devoting two or three years to this alone; trying at the end of this period to make it a Mecca, where can be demonstrated in detail something better than yet exists anywhere, because its parts had been mosaiced together from the best that could be gathered from many places. Then I would proceed in like manner with a primary school for the next three years to eight or nine, and when this was done I would admit visitors and guests for observation and would have teachers enough, so that each would have time for a session or two daily in answering questions, explaining to pupils, for a brief course of perhaps three months, then six, then nine, all that was actually done and why, its meaning, etc. These classes would be the germ of my normal school. Because better and more expensive, the children would pay fees. Thus the training department should grow out of the model school, and not *vice versa*. The summer vacation should be short, not only for the benefit of the children, but for the convenience of teachers, and perhaps a brief summer school might be developed. It is sometimes said that the pattern school should be the test of the normal, should grade it, and by which it should stand or fall. I will go further with the last. My school should be too good for novices to practice in. In many places, perhaps I would

stop here, and at any rate if the plan were copied and I were Plato's wise tyrant, I would stop here and do nothing with higher grades but train teachers for these alone. Probably when this was done, however, I would slowly develop the grammar school building and then classes, perhaps a grade a year, and open all to inspection with guides and demonstrations. Every teacher here should be more or less specialized. In this respect I would try to imitate the German gymnasia, which permit only university graduates to teach boys from eight to nine on. About this, as the cloister and cathedral schools grew up about the great mediæval churches; as some of the best modern churches are now developing about social settlements; and as the best equipped trade schools are under the wing of the great industries, so my grammar normal school should develop about these grades of my Utopian school, and most of their training should be by the grade teachers in superfluous hours, which the corps should be numerous enough to have. But, here I would stop and not trespass upon high school grades. The other schools of town should serve as practice schools, where these normal pupils should serve their apprenticeship, somewhat after Principal Russell's plan, including, if possible, a little work in hospitals and with defectives and perhaps, if most were likely to serve in country regions, I would try to develop an ungraded model school. Some of them might teach in night schools, but all with not too much preparation beforehand and not too much consciousness of the presence of the critic teacher. I would have them practice every year and every week and rise, either up the grades beginning with the lowest, or grow in independence from helpers to control of a room, or possibly in some places up the social classes, according to their teaching ability, scholarship, etc. But in place of much criticism I would enlarge the time of observation in all the grades of the model school, for women are more intuitive as well as more imitative than men, and more in danger of being either spoiled or introverted by too much self consciousness about their work. At any rate, this schemelet may serve to emphasize my own belief that a practice school is radically and essentially different from a model school, while experimental schools or stations—a feature which is so prominent in Professor Dewey's school—I think I would confine for the most part to a supervision where the university expert could also have a voice.

Lastly, leaving the ideal, I believe that the aspirations of independent and isolated normal schools to train high school teachers should be generally checked. It seems to me abnormal and wasteful that normal schools, like Albany, Bridgewater,

Ypsilanti, Philadelphia, Colorado and others, should be allowed to be in any sense rivals of the university or college. That they desire to do so seems to me rather an abandonment of their chief function, when we reflect that the younger the age of the pupil the greater attention needs to be paid to adapting knowledge to them; hence the most and best truly normal work must always serve the lower grades. The experience of other countries, notably the College of Preceptors in London and the Pädagogium in Vienna, shows that secondary education especially needs college or university atmosphere. Several of the larger normal schools in this country are no doubt, in these days of educational federation and combination, soon to join universities. Even Colonel Parker's institution at Chicago for the lower grades, not to speak of the Teachers College in New York, show this tendency. Everywhere within the last few years special schools of medicine, law, theology, and technology are being organized or affiliated and sometimes moved to universities. Fitchburg has sought to bring the mountain to Mahomet, and the Principal says of his admirable course of university lectures, that "nothing pays better." Moreover, the colleges and universities need it, so that the need is mutual.

The late president F. A. Walker, urged in an able paper that the study of education should be the central *all* in woman's colleges, and the subjects immediately connected with it should be the only higher education of women, even for those not destined to teach, both from its supreme culture value in itself and for its practical worth for life. What do we find in the woman's colleges? Radcliffe has courses in education, although it would appear it knows no school hygiene or any child psychology; Mt. Holyoke offers two hours a week of wholesome work; Wellesley has had an assistant professor; Vassar gives the same number of hours—three a week—through the year to the history and theory of education, and each professor gives one or more lectures on the educational aspect of his or her own department; even Bryn Mawr now allows an associate professor of psychology to also teach pedagogy; Smith alone of all the woman's colleges, where nearly one-half of all her graduates teach, still maintains the old attitude and will have none of it. If the university and college have hitherto failed of their duty in this respect, they are in general now thoroughly aroused to it, and are beginning to feel not only the dignity of the profession of teaching, but the culture value of knowing something of it for those who are to be parents and citizens.

The fact is that most who attend normal schools, especially those who desire high school positions, need more and better teaching in the fundamentals than can now be given. Biology, physics, chemistry, mathematics, history, literature, geology,

Latin;—these at least should be taught for such pupils by an expert with the equivalent of a university doctorate. If we were to have committees upon these subjects, composed of normal school teachers and of college experts, sad deficiency would be revealed. These topics for high school teachers need to be taught from a purely scientific standpoint with all the resources of university expert knowledge, and in their logical order for themselves alone, quite apart from any reference to teaching. It is in part for want of this, as I believe, that many normal schools, especially in the West, have made up in intention what they lack in extension, and have little astronomical observatories, departments in stenography, taxidermy, domestic science and economy. Colleges have interest in, as well as competency for, the preparation of high school teachers and I doubt if a single unrelated normal school in the country can do this properly.

Every normal school should have a small and a few central ones, or perhaps the State would have a pedagogical museum. I do not know what became of the plans to develop one at the Massachusetts State House. Russia has a large central one in its fortieth year, where conferences, lectures and expositions of toys and games are held; demonstrations of all kinds of hygienic and illustrative apparatus; publishes memoirs; makes special researches; while France has a museum with a room each set apart for geography, natural history, physics, chemistry, model school laboratories, desks, in all thirty rooms with a library of \$50,000 titles, building plans, ideal tables for science. Its publications make it a center of information; its collections comprise foods, flora and fauna and maps, and it has many thousand lantern slides in circulation on all kinds of topics, with many branches in the provinces. Some schools in Europe make a point of collecting exhaustively plants, birds, animals, rocks, soils, trees, etc., and some have curious and suggestive alcoves or rooms set apart for things that children have made spontaneously.

SOME CRITICISMS OF HIGH SCHOOL PHYSICS, AND OF MANUAL TRAINING AND MECHANIC ARTS HIGH SCHOOLS, WITH SUGGESTED CORRELATIONS.¹

By G. STANLEY HALL.

Of all the sciences that deal with the physical universe, physics, I suppose, may now be called central. In antiquity it was *the* science of nature from which many branches have sprung. Its conditions, perhaps, man's most fundamental views about the world in which he lives. In all the history of science its chapter is perhaps the most imposing, its present growth perhaps most astounding, its applications and utilities most fruitful, its promise for the future brightest, and its disciplinary value unexcelled. Its pedagogic history, too, under various names is some two centuries old. As natural philosophy it has been for nearly three generations the chief, quite commonly the only, science taught in the high schools in the old New England academies and seminaries. Despite its marvellous growth as a science it seems now from some points of view well along in the stages of educational decadence. In this country at large from the year 1893-'94, after the publication of the Report of the Committee of Ten so strongly commending it when 25.29% of all the secondary pupils in our public high schools were studying it, it has declined every year until in the last Commissioner's Report only 19.04% of secondary students in the public and 17.59% of those in the private high schools study it at all, and much more than half of these (as 56 to 42) were girls; and probably less than 7.8% of all the boy pupils in our high schools are now studying physics. This progressive neglect or aversion to physics is, despite the best fostering care of colleges, its high place among entrance requirements, the great ability with which it has been taught in the high schools, and the splendid new text and reference books the titles and characteristics of which are published in the valuable list drawn up by your Committee. Everything that expert knowledge, that the authority which works from above downward, that the advocates of unity and enrichment, that the laboratories and methods

¹ Address before the New England Association of Physics Teachers, Boston, May 24, 1902.

could do, has been attempted. The same decline of physics is widespread among colleges, as President Eliot sadly notes in his late report but cannot explain. Now as this subject has been given such a prominent role as the typical science intended to lead to the introduction of others, this status is especially deplorable for the new education of science, and has given the advocates of Latin, English, mathematics, and modern languages,—all of which have increased greatly and all the pupils in which far outnumber if not far more than double those of physics, grounds against the introduction of science in the high schools, which some of the Latinists, notably Bennett, have used with great effect. Something is very wrong. What is it?

I make no claims to any special knowledge of physics; but as a student of education I believe that the cause lies in the neglect and the violence done to the nature and needs of the youthful soul by the present methods and matters.

1. Boys in their teens have a veritable passion for the stories of great men, and the heroology of physics which if rightly applied might generate a momentum of interest that would even take them through the course as laid out should find a place. As with mechanical so with psychic force, it must be generated over a large area if it is to be applied intensively at a single point. Physics has its saints and martyrs and devotees, its dramatic incidents and epochs, its struggles with superstition, its glorious triumphs; and a judicious seasoning, perhaps, of the whole course with a few references and reports by choice, with material from this field would, I think, do much. Moreover, we see in late years more and more frequently, even in the college and university, popular and new courses on the history of mathematics, chemistry, astronomy and biology, showing that the historic sense is awakening in these fields and giving a present sense of achievement and progress, and nothing appeals to the young more than to feel vividly the sense of growth.

2. The half-score of text-books in physics I have glanced over seem essentially quantitative, require great exactness, and are largely devoted to precise measurements, with too much and too early insistence on mathematics. Teachers in this field have a strong sense, often expressed in your Proceedings, that mathematics is the only proper language of this science. The topics are no doubt admirably chosen, their sequence the best *from a logical standpoint*, and they are such models of condensation and enrichment that it seems to the organizer and to the specialist alike almost perversion that our youth pass it by. But boys of this age want more dynamics. Like Maxwell, when a youth, they are chiefly interested in the “*go*” of things. Recent statistics of boys’ general reading in our public libraries show that they were but little interested in much especially

prepared for them like the Youth's Companion and St. Nicholas, but that the Scientific American and its Supplement led all the rest. The boys with aptitudes for physics want to understand how engines, machinery, perhaps especially dynamos *work*. I have known some greatly interested in the Patent reports; but everything to really appeal to them must *move*. In Germany there are many toys that might be called scientific, of which my colleague, Professor Webster, has an interesting and suggestive collection. Hence, too, the fascination with which in my school days we delighted in lectures and demonstrations with very crude and often home-made illustrative apparatus, which a clever teacher devised and set up for us. This exactness which involved applying mathematics came very late in the history of physics. Even Tyndall, and more yet before his day, knew little of this and never used it in classes, but were most inspiring teachers who powerfully evoked thought and were not affected by the modern rage to apply mathematics to the boy's brain processes, even by marking his examinations and recitations.

3. I must confess myself a convert to the dire heresy that in this and some other fields very much thoroughness and perfection violates the laws of youthful nature and of growth. The normal boy in the teens is essentially *in the popular science age*. He wants and needs great wholes, *facts in profusion, but few formulæ*. He would go far to see scores and hundreds of demonstrative experiments made in physics, would like to repeat them in his own imperfect and perhaps even clumsy way without being bothered by equations. He is often a walking interrogation point about ether, atoms, x-rays, nature of electricity, motors of many kinds, with a native gravity of his mind towards those frontier questions, where even the great masters know as little as he. He is in the questioning age, but wants only answers that are vague, brief, but above all, suggestive; and in all this he is true to the great law that the development of the individual in any line of culture tends to repeat the history of the race in that field.

4. Last, and perhaps most important of all for our purpose to-day, the high school boy is a utilitarian. The age of pure science has for him not come, but its applications, though not logically first, precede *in the order of growth and interest* the knowledge of laws, forms and abstractions. He would know how the trolley, how wired and wireless telegraphy works, the steam engine, the applications of mechanics in the intricate mechanisms, almost any of even the smaller straps and buckles in the complex harnesses science has put upon natural force charm him. Physics in the field, the street, the shop, the factory, the great triumphs of engineering skill, civil, mining,

mechanical, inventions in their embryo stage, processes, aerial navigation, power developed from waves, vortexes, molecules, atoms, all these things which make man's reaction to nature a wonder book; and we, in frequent conversations and copious information should arouse his imagination, for this is the organ of the heart and opens up the way for reason. The boyhood of the great makers of physics and astronomy, who have found out and opened a natural way for their own genius, is a lesson which most teachers of physics, I fear, have not enough profited by. The subject matter of their curriculum is too condensed, too highly peptonized for healthful assimilation; and we are too prone to forget that we can only accelerate nature's way, but never short-circuit it without violence.

The influence of the college professors of physics and their text-books has in the last decade or two been a stimulus of very great value in elevating standards, but this work now, in my opinion, has been overdone and the time has come when high school teachers should assert their independence and make adjustments to a stage of youthful interest, of which the college professor knows little. High school physics has problems all its own to which its representatives should address themselves with courage, resolution, and above all with independence, or else the present decadent tendencies, more due to college control through the undue influence of examinations and standards than to them, will continue and with it the scientific movement, of which it is in a sense the pioneer, will suffer still more.

I accepted the invitation to speak here to-day because I believe that your suggestion of closer relations between physics and manual training may open one important way out of the present condition. Such *rapprochement* would involve important modifications both in your work and that of the manual trainers; but it is precisely and very happily just such modifications as would tend to this approximation as, in my judgment, are greatly needed for both physics and for manual training, although for effective and complete correlation perhaps more and harder changes would be necessary for representatives of manual training than for you.

I turn, therefore, now to the other party in this problem of co-ordination.

No one can fail to admire the recent and magnificent institutions for secondary manual training lately opened at a few favored places in this country, which it is such a joy and such a happy augury for the future to visit, where the muscles—nearly half the human body by weight and the only organs of the will, which have done all the work that man has accomplished in the world—are trained; because physiological psy-

chologists can almost endorse Huxley's statement, that man excels the ape in brain power no whit less than he does by the power to use his hand. The studies of the brain of Laura Bridgman and many others show that those parts of the cortex which innervate the hand grow deep if it is trained to skill, and atrophy if it is unused; so that no kind of education so demonstrably develops brain as hand training. Doing is an organ of knowing, and the education of the booklings who neglect it is unreal, formal and superficial. Motor education has not only come to stay with the world, but every sign indicates that it commands the future, and has before it a surer and greater growth than any other field of education. Everywhere and to everything pedagogues now feel that they progress when they can add a motor element. Moreover, muscular development in the order of nature not only precedes, but conditions that of mind in its highest activities. It is related to it as what is fundamental and primary is everywhere related to what is secondary and accessory. But I cannot forbear a grave and growing fear that the leaders of manual education neglect what Mr. Richards well calls its thought side, and what Professor Thurston insists must be more and more basal for every kind of practical and industrial training, whether it be liberal or for trades. Machinery must not make its pupils merely mechanical, and the wood and iron work are not the only and perhaps not the most educational. Progress now in every modern industry is coming to have more and more a scientific foundation and is resting more squarely and directly upon knowledge of the laws of nature. Physics, chemistry, biology, mathematics and geology supply the universal basis and every manipulation of matter is a case of applied science. Science is thus to have an ever vaster role, and all the leaders of industry must serve an ever longer apprenticeship to science. What we apply of it now is but a small part of that which will later be needed. The preparation of youth for all the practical vocations must be constantly longer, and all the arts are ceasing to be empirical and becoming more and more dependent upon knowledge of the laws of nature.

From this point of view, I, for one, believe that our manual training high school work is too mechanical; that it does tend a little too much to make joiners and cabinet makers in its wood side and machinists in its metal work. To be really liberal, the hand must simply be used as an instrument for opening the intellect and even the imagination, and therefore be predominantly humanistic, if we would avoid defect, and be brought into the closest possible connection with the widest area of vital world interests. Manual training should not only be more a fore-school for engineers of various kinds, but should at every point be developed in closest rapport with physics and

the other sciences that minister to it, and should be regarded mainly as a means of widening knowledge and deepening interest in these. Man is a tool-using animal, but all the mechanician's rules should teach him more than to use his tools. On the basis of agriculture and the scores of vocational arts that underly and condition our modern life, can and will be built up a system of education that is most truly liberal and better calculated to make scholars, investigators and leaders, and give more freedom and initiative, with less pedantry of method than the world has yet seen. Tools and machines are not educative unless they open the world of thought that these have made. The jack-knife and whittling school, the simplest chip carving, if they use the brain more, are better teachers than all the formed and methodic products of manual schools stimulated by prizes and competitive exhibitions.

There are now two chief kinds of manual training very distinct in idea, plan and scope. First, those just described, and all others where work is carefully graded as to stages of progress and perfection; where exactness and finish are required; those devised for the sake of tools in the order of difficulty, passing from them to machines; those where great stress is laid upon the order of material worked with—paper, clay, wood, iron, etc.; in all these the finished product is either of no use or of very little, but the models are arranged according to grades of difficulty and such utilities as they may have, as for paper cutters, blotters, picture frames, are subordinated. At this point one has reached the stage of the dove-tailed joint with a miter; or in wood turning he has come to the goblet; or in forging has reached the cold chisel, chain welding, or ribbed handle, the use of the thing made being only slight or incidental.

In the other type of manual training, the product is cardinal. Something is made because it is wanted or needed. *Finis coronat opus*. These are not trade schools like the Textile School at Lowell; the watchmaking school of the Bradley Institute; the Auchmutty School for plumbing, papering and brick-laying, but are rather illustrated by a vast variety of institutions like Abbotsholme, where the best boys in England train to cultivate the soil, care for stock, make their boats, boat-houses, bird-houses and band-stands; the Hampton, Pratt, and the Clark Institution at Atlanta, with twenty-three industries, where students quarry stones, cut oak, make brick, draw plans, and put up dormitories and other buildings; our own Thompson's Island, etc. These schools, although often for Indians, negroes, or juvenile delinquents, are, I believe, the very best schools in the country if judged by the annual growth in mind, morals, health, ability and knowledge of the

pupils. The most instructive and interesting points on the educational map to-day are schools like that of Mr. Roe and the school at Phoenix, Arizona, where Indians teach each other their own industries now in danger of going the way of the lost arts—basket weaving with all its wondrous skill, birch canoes, moccasins, the pottery of several tribes, bead work and tent-making. Often, if not usually, in the history of education, schools devised for the lowest classes of society and all in their interests are gradually usurped by the highest classes and slowly transformed, not in all respects for the better. An inexhaustible wealth of curricula is waiting to be developed, which shall train character, intellect and will, and be essentially liberal and humanistic, out of industries. Just as Sloyd begun by attempts to teach Swedish peasant children to make crude utensils, so from the Indian industries alone can and will be evolved curricula as no whit less educative and with the added stimulus of making things that are both serviceable and salable. But this is a long chapter of arts and crafts which should come elsewhere. It is the genetic, so different from the logical order. Thus industries arose, and thus the child develops faster who repeats the history of the race with judicious omission and with the most educative processes wisely accented.

In his admirable address¹ President Pritchett well points out the short-comings of Boston in technical and industrial training as compared with Berlin, and well recognizes the unfortunate proclivity of those who represent manual training in high school grades to hold aloof from immediate utility and practicality as represented in monotecnics or trade schools, as if this work was something almost contaminating. For myself, I think the manual training high school of the cabinet making and smithy type a very inadequate, if not an almost perverted, representation of what truly liberal manual and industrial training ought to be. What has been the main spring and motive in every step of man's marvellous industrial development from the age of stone, bronze and iron up to wireless telegraphy? It has been *interest in the product*, and to this the *process* has been absolutely subordinated; but now comes the pedagogue with his supernormalized methodic bias and gives us curricula, some of which are about the purest representatives of form without content that even the educational world can show. No boy ever really puts his head into his work unless he is full from start to finish with the thought and the desire of using what he is making, and to my mind there are few more ghastly products of pedagogic art than the so-called graded models—iron in their in-

¹ Technology Review, January, 1902.

flexibility and wooden in their intelligence—and with the vitalizing idea of utility and that from the boy's standpoint, carefully dissected out. Of course the boys are interested in their tools and machines in a way, but the years they spend in these institutions fall far short of educating the head in proportion to the hand as should be done; and I believe specific trades would really better train heart, head, hand, and above all *morale* than do these thin curricula, which are *neither liberal, because they hardly touch science, which is more and more the basis of every industry, on the one hand, nor utility, which is the spring of all industry and trade on the other, but hover aimlessly between.*

What then should be done? I answer, the true goal to be gradually approximated here should be curricularized toy-making for the lower grades of manual training, and this should merge over in the high school grades to the construction of apparatus illustrating scientific principles. Many tentatives in both these lines have been made in various places, especially in Germany as Waldemar Goetze shows, enough to show that the elements of toy and apparatus making can be sufficient for all educational purposes and would, as it were, shunt in myriads of brain cells which are not touched by present methods. Here we need a touch of originality and not blind aping of older institutions in other cities or even abroad.

I have often thought in examining toy exhibitions, of which there are several great and permanent museums in Europe with national congresses, how much could really be taught by them. Many German toys, with bugs that flutter and creep; birds that fly, peck and sing; monkeys that climb and turn somersaults; soldiers that march, stab, thrust or shoot; boats that go both by wheel and rudder; dolls that walk, gesticulate, say "Twinkle, twinkle little star," with phonographic apparatus; flowers that open to the toy bee and then spring upon him like the Venus flytrap; balloons that propel and steer themselves; steam-engines that go and then reverse;—these are often *masterpieces of mechanical simplification*. Some of them illustrate fundamental principles of electricity and magnetism, acoustics, equilibrium, etc., and I believe would have a suggestiveness that would well repay study for my committee in their search for models of things to make in the shop and from which even their algebraic formulæ could be better taught when they were done. Much help would be found in a few of the best boys' books like Cassell,¹ Baker,² Beard,³ Routledge,⁴ and Pepper.⁵

¹ Book of Outdoor Sports and Indoor Amusements.

² The Boys' Book of Inventions.

³ What To Do and How To Do It. American Boys' Handbook.

⁴ Science in Sport Made Philosophy in Earnest. Discoveries and Inventions in the Nineteenth Century. ⁵ The Boys' Play Book of Science.

Closely allied to this a competent and open-minded committee would be sure to find interesting suggestions in the literature of magic, especially in the books of Hoffmann and Hopkins which, like the best toy books, abound in scores of things that could be easily made in a manual training department, which could be graded, and which when finished would illustrate scientific principles and give all the zest that the natural boy feels in the implications of superior knowledge which thaumaturgy supplies.

Of course the chemists should come into such a conference or be represented in a committee seeking to effect this co-ordination. The survey, too, should be wide. Those who have visited the magnificent *École du Livre* in Paris, where printing, binding, paper making, and everything about books is taught, would find here new elements of manual training;—rubber work, hard and soft, so far as I have seen its processes; soldering and plumbing as exemplified in Mr. Tower's admirable little book;¹ certain elements that Mr. Hammel, of Baltimore, has proven practicable, and a little library of books like R. S. Baker's could be utilized. In these ways alone, problems of the lever, balances, the wedge, pulley—fixed and movable, pump, monochords, rods that vibrate, whistles, perhaps tuning forks, prisms, small lenses which can easily be ground by boys, mirrors, some of the principles of steam and heat conductivity and calorimetry, perhaps some stone work which has been found very practicable at Phœnix: the magic lantern, stereoscope, magnetism, electricity, kaleidoscope, telegraph, etc., could be naturally approached with a full head pressure of normal boy interest.

I will even venture to add a few special things which might be done and made in a manual training school, and which touch the heart of the physics interest in the boy.

The history of glass work goes back to ancient Egypt, and is a very interesting chapter in the history of industrial education. Until nearly a century ago, glass-blowing was often a profession for gentlemen. Its educational value for the hand in training it to work under the guidance of the eye and the brain has always been highly praised. Glass is almost the only thing schoolable that requires exact time. You can stop lead and wood, but here all must be done on the moment, like tempering steel. Bolas, Shenstone and others show us how boys can be trained to make a plain thermometer the first day. The equipment with the stock of tubes, blow-pipe, bellows and tools, occupies hardly more space than a sewing machine, and some devotees claim

¹ Plumbers' Manual and Text Book. Arranged and copyrighted by F. W. Tower, Springfield, Mass., 1901, pp. 242.

should have a place in every household where there are boys or girls. In six lessons, I once took, I learned to drill with turpentine; to use the diamond; to lead cracks; to seal, pierce, and grind both lead and soda glass; make a spirit level, etc. It is very easy to teach boys to grind small lenses, and with an annealing oven to work in fluoric and other colors; to gauge, clean, weld; do some decorative work: make and grind stoppers; choke or contract the bore; make funnels and joints; to calibrate and even to make U and spiral tubes and many pieces of very simple apparatus used for physics and chemistry. At South Kensington deep sea thermometers are made and lectures on the history of glass and its manipulations are given, and the manual discipline; which can be given thus, is compared to that of learning the piano.

Tops of very many kinds are easily made, and these are the open sesame to many of the simpler as well as of the profoundest problems in physics. Boys could easily make a plain Maxwell top and record some of the curves of its wonderfully complex gyrations which have not only illustrated, but so illuminated many of the highest problems, such as Professor Klein demonstrated in his remarkable lectures in this country by its use. Few things so combine the toy interest, so strong in every boy, with scientific insight, or impel so strongly from sense to reason. A graded course in tops alone might lead into the very heart of some of the profoundest questions in physics, and incite curiosity and develop interest in everything that spins or rotates, according to scores of laws and equations from vortices and possibly atoms, ions and electrons, to worlds and stellar systems. No boy could take a well devised course in top-making without opening his mind and stimulating his thought in the highest degree and thereby making the hand an organ of science.

Kites also rest upon a rich soil of native interests and experience. Beginning with the simplest form that fill the air at the kite season, or when a local fad is at its height, up to kites with attachments, flyers, diverse individual and perhaps fantastic forms, up to the complex series of box kites that at the Blue Hills of Milton and in many other meteorological observatories are lifted into the air and clouds to penetrate the secrets of the humidity, temperature, changes of pressure, velocity, perhaps even with photographic attachments, etc. *Where work that the boy has made himself with his own hands goes, there his interest follows.* His reading is stimulated; the inner eye back of the retina is opened, and that priceless though semi-conscious education, which is by hints and suggestions and which is far more rapid and indelible than anything in the memorized and examinable region of the soul, goes on by leaps and

bounds. Thus skill with the fingers is harnessed to development of the cerebral neurons, as it should be, and we are working in the depths and not the shallows of the soul. Baden-Powell, Woglam, Hugh Wise, Varney and others have made a new contact between boy interest and science here that should have consideration.

Photography should be especially examined for its educational features. Among the most interesting educational institutions I have ever seen, is that of the Imperial School of Photography, with its magnificent building, in Vienna, where all the processes of reproduction, lithography, lantern slides and methods of scientific demonstration, as laid down in the well known text-books of Dolbear, Wright and Elmendorf are taught. At least some of the schools of horology, especially that at Besançon, ought to furnish suggestions, with interesting methods of making and testing pendulums, studying sound vibrations, with simple chronometric Verniers, study of springs and methods of synchronization.

Thus, in fine, holding as I do that instruction in physics for high school grades would gain by being made less exiguously scientific and with more alloy of practicality and natural interests, and that on the other hand manual training still more needs reconstruction in the interests of culture. I think the time has come for a joint committee who should, not excluding chemistry at least, carefully survey the whole field of motor education and select and co-ordinate therefrom, wherever found, elements which will at the same time develop a more intelligent basis to manual courses and give more concrete, all-sided interests their scope for physics. Each is suffering for much that the other could supply, and which, if based upon natural instincts and nascent periods of youth, they would inevitably overlap and not only supplement but complement each other. Their divorce is a strange and surely transient anomaly in our educational system. Precedents exist, I think, for every step in the correlating processes that would be found wise, and which would bring to the other the new access of interest, and therefore of power and educational progress.

Scientific apparatus is more generic than machines; some pieces are products of decades and even centuries of progressive improvement. Perhaps nothing that man has made is so instinct with reason and science, or such an open sesame to the laws and mysteries of the physical universe. Without a large arsenal of these, every physical laboratory, no matter how splendid, is a monster without a soul. The quality and abundance of these are perhaps the best general test of the professor and the quality of his work in a high school. The best courses

of lectures I have ever attended were in Germany, one of which was in what was well called a theater, where several assistants were employed to adjust the illustrative apparatus which was drawn up through the floor, and let down from above and the sides, prepare the demonstrations, and manage the lights; and in the other, a large historic element was introduced by demonstrating apparatus. Illustrative devices perhaps might be added to the material chosen from. That the making of the best things selected from this vast field will be a part of high school training in physics ultimately, I have not a shadow of doubt; but it may be that physics will have to organize these courses by itself with little help from the representatives of manual training, who in this country are too dominated by the influences which originated in utilities, but in being transferred to this country, so largely eliminated them that it has grown formal, hollow and artificial.

FETICHISM IN CHILDREN.

By G. HAROLD ELLIS, Fellow in Clark University.

§ 1. USE OF THE TERMS FETICH AND FETICHISM.

The words fetich and fetichism are commonly used as blanket-terms for all forms of savage religion whether worship of sticks, stones, trees, rivers, mountains, fire, animals, or the heavenly bodies, but following Maj. A. B. Ellis (8, pp. 176-195), who has spent many years as an officer in West Africa, I here restrict the terms to their original significance.

When the Portugese began explorations in West Africa some 400 years ago, Christian Europe was full of relics and images of saints, charmed rosaries, crosses, etc., which were supposed to give protection and success, and when worn gave still greater protection. Such charms were called *feitiços*, and when the Portugese saw the negroes paying the same reverence to charmed stones they applied the same word to the savage charms.

As to this significance of fetiches there is much diversity of opinion. To Brinton the fetich is something more than the mere object (4, p. 132). That the savage beats his fetich when it does not bring him success proves the contrary, nor have we evidence that primitive man was ever able to distinguish between the body and spirit.

The whole matter of fetichism is made clear by a study of the probable line of development of primitive religions.

Dr. Hall has shown in his exhaustive study of fears (13) how much the fears of our animal ancestors trouble us to-day, but what is true of us is even more true of primitive man when he first emerged from brute life. To him there was no line drawn between animate and inanimate objects; animals, trees, stones, and the heavenly bodies were all living, thinking beings like himself. The dependence upon nature for life caused him to treat the real or imagined source of his good just as he treated a fellow-man—he frightened and coerced when he could and gave gifts for what he could not get by force.

The conception of the gods as distinct from and superior to men has only been evolved slowly in history. At first the supernatural agents were not much, if at all, superior to man. As his knowledge increases man realizes how small and insignificant he is. This feeling but increases his sense of the great-

ness of the spirits. With this growth of knowledge, magic falls into the background and prayer and ritual take its place (9, p. 20). "How far fear is the basis of religion we may never know, but certainly the feeling of awe and the sense of absolute dependence on powers above us will remain to be modified by love but never banished" (13, p. 232).

Fetichism at first confounded the spirit and the object, later when man became more cultured he thought of the fetich as the place where the spirit chose to manifest itself, and finally came to consider the fetich as a symbol, an aid to devotion, or even came to rise above its use. With growing culture came a growth in æsthetic sense and the fetich is improved by a gradual conformity to the human figure, or some animal form. There is no line of demarcation between the rough unhewn stone fetich and the Aphrodite of Melos.

Primitive man worshipped where it paid him to do so and naturally enough under the influence of his needs and the environment, certain things that ministered to those needs were worshipped and all others fell into disfavor.

Religion is supposed by Spencer (23, ch. 21) to have originated in ancestor worship, and by Knight (26) and others, in phallicism, but at most these are forms of religious expression—never its source. Hence we may find all objects of nature worshipped by a people, or only a few to the exclusion of the rest.

"In course of time the personalities of the fetich worshipper became to some extent generalized. Homogeneous appearances are grouped into classes and each class referred to a single deity, and hence polytheism" (1, p. 22-3). Further development leads to pantheism or monotheism.

Fetichism is often used as a term of opprobrium for senseless reverence of savages or non-Christian religions but Christianity has more unseemly accretions than the Greek religion. Compare, for example, the Aphrodite of Melos with the hideous images and relics that adorn so many modern churches.

§ 2. PREVALENCE OF FITICHISM.

Fetichism as a phase of the lowest stage of religious expression, animism, is found all over the world.

"Animism with its variants, more or less developed is the religion of all uncivilized peoples untouched by international or universal religions: Buddhism, Christianity, Mohammedanism, etc., and even among those who have accepted one of these religions, animistic ideas persist with great obstinacy. How many Christian peasants there are who believe as firmly in spirits, in ghosts, in guardian genii of cattle and crops, as in the various saints of the church with whom they sometimes

confound them! Besides, spirits, such as angels and demons, are admitted by most Christian churches. Fetichistic practices also form part of the outer worship of Lamaite Buddhism and Taoism, and they are not only tolerated but prescribed by other universal religions. I need but mention the amulets, talismans, scapularies, miracle working relics, etc., among Mohammedans and Christians" (7, p. 218).

- Stone worship exists to-day in England (14, pp. 108-142), Scotland (11, p. 115), Wales (21, p. 361, etc.), and France (20), as widely as ever.

"Modern folk-lore is full of fetichism and it is a development of the religious sentiment which flourishes in all times and climes. Amulets, charms, lucky stones, everything that we call by the familiar term of *mascot*, partakes of the nature of a fetich. That some fancied potency not to be found among its physical qualities, it is believed to bring us good fortune" (4, p. 135).

"When the Christian touches the bone of a saint that he may be healed of an infirmity, or when he speaks of his church edifice as "the house of God," or when he packs in his trunk a Bible "for luck's sake," he is as much a fetich worshipper as the negro *caboceer* who collects around him a thousand pieces of rubbish because he thinks they have brought him good fortune" (4, p. 134).

That this fetichism did not come from savagery alone, but even from the highest culture and most spiritual religions, a study of the Greek religion and the Bible will abundantly show." The sacred image of Diana of the Ephesians was nothing more [than a stone], and the Latin father Arnobius tells us that the image of earth, the Great Mother, brought to Rome from Phrygia with sumptuous pomp, was merely "a small black stone, rough and unhewn" (4, p. 147).

The original fetich stone has been found *in situ* below the statue of Apollo in Delos (19, Vol. I, 275-6).

Perhaps the strongest influence in Christian fetichism is the survivals of Jewish fetichism that are found in the Bible.

Massebas in the Bible appear simply as memorial pillars without any definite religious meaning; but this is due to the fact that history has been conformed to the standpoint of the law and later prophets who looked on the ritual use of sacred pillars as idolatrous (22, p. 186). These pillars were phallic symbols (2, p. 102) which had developed from the older and more primitive stone worship. The Beth-el was but a stone which Jahveh was supposed to inhabit (Gen. 28: 22). Even when Judaism had risen above stone worship, the massebas were preserved but the original significance was forgotten. These pillars and the ash-eras were considered as essential to worship as the altar itself.

(Ex. 24 : 4 ; Hos. 3 : 4 ; 10 : 2 ; Isa. 19 : 19). The ark probably contained a meteoric stone which was considered the abode of Jahveh. Stones were considered to be the abode of evil powers (Lev. 14 : 45). The will of God was supposed to be revealed in the magical stones worn by the high priest. A most suggestive study could be made from the references to stone or rock in the Bible. In 1 Cor. 10 : 4 the word *rock* is used with reference to God in a most inappropriate way. Remembering that the philosophy of the savage is the poetry of to-day, much can be found in the Christian hymns that is a direct survival of fetichism.

Stone worship has been the source of inspiration of many of the most beautiful and spiritual Christian hymns. "Nearer my God to Thee" is based upon Gen. 28 : 10-22 which is thoroughly fetichistic. Other hymns of like character may be seen in "Like Jacob in his Bethel Rest" and "Nettleton," especially the line—

Here I'll raise my Ebenezer.

Most hymns express a sense of protection from evil rather than worship of the attributes of God, *e. g.*: "O then to the Rock let me fly," "Rock of Ages," "The Rifted Rock," "My Rock and Shield." Some hymns worship the cross as a fetich or unite it with that of the rock, *e. g.*, "Nearer the Cross" and "The sure Foundation;" the opening words of this last begin :

1. There stands a rock, etc.
2. That Rock's a cross, etc.
3. That Rock's a tower, etc.

In "I'm so Glad," we find :

He is my "ark of safety"
And my "rock" when storms assail.

This combination of "ark" and "rock" is just what a sailor would most dread, and here we see how words will persist even when they have lost all meaning.

"The Mercy Seat" recalls the savage seeking response from his fetich.

Most remarkable of all fetiches is the Bible. When the Revised Version was translated the translators were so bound by popular reverence for the Scriptures that they did not dare depart from the old King James Version. The history of the American Bible Society is one of blind senseless regard for the letter even to misspelled words. A volume could be written on the fetichistic regard with which the Bible is held. That the most glaring fetichism exists in the midst of the highest civilization can be seen from the reverence for the English Stone of Sconce and other paraphernalia of coronation. No benighted

savage could show any more reverence for his fetich than the American flag receives officially from our government. We may call it *sentiment* and *symbolism* but that is only a euphemism for what in the savage we would call by another name.

§ 3. RECAPITULATION OF THE RACE IN THE CHILD.

The old saying that parents live again in their children is no less true than that the child lives again the history of the race (6, pp. 213-353).

Biologically the child passes through the whole range of types from the protozoan to man. At conception the organism is a minute unicellular structure, by the second week it has become an invertebrate worm, at three weeks it is a fish and breathes with gills, by the fifth week it has developed into an amphibian and the limbs have become differentiated and are webbed; thence on to the middle of the third month reptilian characters predominate. Gradually the foetus assumes an anthropoidal character and from about the fifth to the seventh month the body is covered with hair like the apes.

Any interference with the course of nature may cause arrest at any of these stages and result in monsters at birth.

The atavisms of young children are suggestive. The infant sits with the soles of the feet together, as do the apes. A new born child can sustain itself for one minute by clinging to a stick. This is not so strange when we remember that the young of apes have to cling to their mother. There are a large number of rudimentary organs in the body, which, like the vermiform appendix, were useful at some stage of the organic evolution (28).

Psychologically there are many things explained only by the recapitulation theory. In dreams the old racial fears often make nights miserable (13, p. 189). Kissing has developed as evidence of faith that the person would not be eaten, a fear which so common in our animal ancestors must be taken to account for the strange fear many have for teeth, fur, etc. Blushing is a survival of the sex fear. Distrust of strangers and neighbors that is so common in sparsely settled communities is a survival of the fear primitive man, always at war for existence, had for his fellow-men. The suddenness with which the fear of disease and death may spring up to over-mastering power "shows a deep hereditary root copiously watered by superstition" (13, pp. 213-19, 226).

The tendency of children to run away is an echo of the migratory impulse of our ancestors, which has become abnormally developed in the tramp and "globe trotter" (18).

The fascination water has for children and even adults has

been taken by Bolton as "the abundant proof of man's pelagic ancestry" (25).

Even in their games boys reduplicate the whole social history of the race (17).

In view of these well attested facts it is fitting that we look to the child for evidence of the beginnings of religion. Whatever religious impulses are found will be founded on superstitious fear or unquestioning faith in the word of adults.

§ 4. THE COLLECTING INSTINCT A SURVIVAL OF FETICHISM.

Mrs. Burke in her study of the collecting instinct finds that this impulse "is practically universal among children. . . . It has its rise in early childhood, develops rapidly after six years, and is strongest from eight to eleven years, just before adolescence. . . . In childhood there appears the crude instinct to collect anything, however trivial, anything simple and easy to obtain" (5, pp. 204-05).

Her table IX (p. 200) is suggestive :

MOTIVES FOR COLLECTING.

	BOYS' MOTIVES. PER CT.	GIRLS' MOTIVES. PER CT.
Imitation. Because others did,	29	25
Rivalry. To get as many or more than others,	2	4
Quantity interest. To see how many,	20	15
Interest in kind. To see how many kinds,	3	6
Indefinite,	8	6
Enjoyment, use, of objects,	7	10
Pastime. Pleasure in collecting,	4	3
Interest in objects collected,	7	9
Æsthetic attraction of objects,	3	8
Commercial motive,	7	2
Souvenir interest,	2	5
Miscellaneous,	8	7

It will be noticed that imitation and rivalry account for but 31% of motives in boys and 29% in girls. The æsthetic, commercial, souvenir, miscellaneous (luck, to give away, etc.), motives is 20% in boys and 22% in girls. This leaves 49% in both boys and girls to be accounted for in pleasure of one kind or another.

Here the matter is not explained, for why should children take pleasure in collecting such trivial and useless objects?

This is all the more complicated by the fact that 8% of the boys and 6% of the girls could give no reasons for their collections.

Mrs. Burke saw there was something yet to be explained but did not offer a solution :

When we consider its universality, its wide-spread affection, when we consider its intensity, the number of collections children make and the interest children take in them, when we consider the variety of the things collected, showing that the mania seizes upon any and practically every outlet imaginable, and showing, too, that to collect is more important than what is collected, when we consider, moreover, that the phenomenon has a definite progress,—a rise, a growth, and a decline, an age—development,—we are inclined not to hesitate in calling it an instinct (p. 206).

The psychological explanation of this instinct seems to be that the child has in it the survival of the savage impulse to collect the strange and beautiful in the hope that some good will come thereby. This vague unanalyzed feeling in the child was the philosophy of its savage ancestors. Just as nameless fears and mysterious impulses are echoes of ancient psychoses, so is this collecting impulse a dim reminder of the fetichism of our ancestors. Evidence of this is seen in Mrs. Burke's study in the fact that even "a comparatively few" reported collections made for "luck" (p. 205).

Many returns from a questionnaire show the collecting was made instinctively :

1. F., strung beads but did not regard them with any degree of feeling, doing it simply for amusement.
2. F., collected small stones and shells but did not attach any special significance to them, merely collecting and hiding them.
3. F., collected bright pieces of glass and treasured them as if they were gold.
4. F., had a season of collecting and keeping stones. She had no special feeling for them except that they were pretty.
5. M., 17, saved bright colored stones, and smooth, round and small stones.
6. F., used to gather baskets of stones, especially pretty marked ones, and place them in rows on the piazza.

The element of mystery is the cause of many collections.

7. F., always picked up pretty stones. Would put them in water to see the color come out.
8. —, could not understand why stones were less pretty when dry.
9. F., was very fond of breaking them and noticing the different colors and streaks. Stones with a black line around them and different shaped stones attracted her and she collected many.
10. F., collected stones and cracked them open to see which were the prettiest.

§ 5. CHILDREN'S ANIMISTIC CONCEPTIONS OF INANIMATE OBJECTS.

It is hard for the child to distinguish between the self and not-self. This is seen in the way in which things are regarded as a part of the personality or family.

11. F., when two or three, had a particular spoon that she ate with and without which she would not eat. She would allow no one else to use it.

12. F. I kept pictures, magazines and books and didn't like to have them injured. I never, to my knowledge, thought of these things as being alive—I was simply very fond of them and wanted them to be mine because they satisfied some part of me.

13. F., 18. I want to keep forever everything I ever worked and played with. Toys and even school books seem a part of me and I would not part with them.

14. F. At home they have a large brass match box, 200 years old, which has always been in the family. She feels that it is a part of her ancestry.

15. F. Her brother has an old kitchen clock which used to be in her home. She regards this as one of the family.

Playthings are regarded as persons.

16. F., 4, is in love with a little chair, wants to take it to bed and everywhere, and wished it to see everything. She cares less for other far prettier things.

17. M., 5, was strongly attached to a small, rude chair-shaped block of wood, called it "boy block," took it everywhere, hugged it, cried when it was lost, etc.

18. F., 16. The deepest love I ever had for anything was for an old stuffed elephant, out of which the sawdust was leaking.

19. F., 17. My brother, aged three, has a bit of an old strap, which he always keeps and talks to and takes to bed with him. We cannot find out why.

20. F., 19. I wore a star and crescent badge of our club. I felt it was somehow like a man.

21. F., had a small stone over 100 years old. When it was broken she felt just as if a person had been hurt.

22. M., 9, played pretty stones were people.

The rudiments of a philosophy is found in the child's explanation of the origin of things.

23. F., 17. Metals and minerals awed me, from a sense of vast antiquity. I thought metal working the chief occupation of early man.

24. M., 23. As a boy, I saw lime slacked and immediately conceived great awe of it. I got and cherished a piece and fancied many things about it.

25. M., 23. wondered where stones came from but was ashamed to ask.

26. F., 19, thought stones came up out of the earth.

27. M., 7, thought stones were made of ground when it got hot; clouds of dust turned into stones. Wondered if they turned back.

Here we have speculations on ancient history and attempts to solve the problem of nature. No. 27 is remarkable as closely approximating Heraclitus's theory that all is a flux, and also suggests the ancient Greek theory of physics that material phenomena are different condensations of a primal substance.

28. F. I had certain places where imaginary friends lived, and didn't want other people to go there.

29. F. I remember I used to take collections of different kinds of

buttons and imagine them as men and women and make them act as if they were alive. Sometimes I thought they were an army and I would make them have a fight by shaking them up and all those turned over I thought of as dead.

Such conceptions as these give the foundation for a mythology that only needs time to develop it.

Stones are regarded as having feeling, as knowing what is going on, as sympathizing in trouble.

30. F., 16. Stones have feelings. She fell on one and struck it back to make it feel bad too.

31. M., 18, was sorry for little stones and hated to tread on big ones if pretty.

32. —, hated to stamp on gravel walk to hurt the stones.

33. —, thought everything felt and could be hurt. Sorry for plain stones.

34. F. I had also a number of magazines which I read and re-read and they seemed to me more like real friends than books.

35. —, collected white stones and thought they appreciated love.

36. —, played with and talked to stones, and put them in a silk lined box.

37. F., 6, kicked the top stone off a pile and said "You bad stone, you lay on top and hurt the rest." She then took the pile apart and laid each stone by itself on the ground.

38. —, was angry at stones and kicked them.

39. M., stubbed his toe on a stone and tried to break it with another stone.

40. F., when angry vented her anger upon the object which caused it.

41. F., vents anger upon the thing that bothers her—if algebra, she pounds it; if a door she slams it.

42. F., when she breaks an object she throws it to break it more because she feels so angry that it has been broken.

43. F., when angry likes to slam doors because it gives vent to pent up feeling.

44. F., when angry slams books to make a noise, and kicks chairs to get them out of the way.

45. F., when angry would go to her room and throw and tear things. She did this to show that she could conquer *something*. She would then try to mend the broken article.

46. F., feels that stones have sympathy; that the one in her ring knows what is going on. Seems pathetic to her to throw a pretty stone into water.

47. F., would not throw a pretty stone into water because she would not want to part with it. She regards stones as friends.

48. F., would feel very sad for throwing a pretty stone into the water because she would not want harm to befall anything beautiful. She always felt that familiar objects felt sympathy for her.

49. F., 8, threw stones into deep water and cried because she was sorry for them. She thought stones stuck to the bottom of ponds and pails, and wondered if they were hurt; if it was cold, dark, smothery.

50. —, tried to think how the stone felt in the water and mud.

51. —, thought stones were angry at being thrown in water.

52. —, threw a stone in water and cried heartily.

53. —, tried hard to fish stones out of water.

54. F., feels that when the cold waves dash against the rocks, they must feel cold.

55. M., would not put stones in water because he could not live there.

56. M. 6, threw stones into the fire and water and wanted to get them out at once.

57. F., thought a certain rock saw all she did and would sometime tell.

Human relationships are conceived of as existing between large and small stones, and distinctions between animate and inanimate objects are not made.

58. F., 19. Large rocks are the fathers of the little ones.

59. F., 18, thought sand was alive and grew. Sand was young stones that would grow up to be rocks.

60. —, when four, knew stones grew to be large rocks.

61. F., in the country said "Stones grow larger here than at home."

62. F., 17, thought a big black stone in the forest must be very old.

63. —. Two girls disputed whether stones grew and to prove her side, each kept one. The stone of the girl who thought they grew, did grow, but the stone of the other girl did not grow.

64. —, planted and watered stones to make them grow.

65. —. When a child thought stones were eggs and would hatch.

One of the most fascinating diversions of the child is to trace forms in the figures of the wall paper, or anything else.

66. F., used to look at the cracks in the walls and imagine them to be forms of animals or plants.

67. F., used to imagine pictures of people, etc., in the wall paper of a certain room.

68. F., found a piece of knotted wood that seemed to resemble a dog. She kept it and played with it thinking more of it than of her dolls.

Numbers 66 and 67 show an instinct that is very common in adults who delight to sit in the dark and trace in the glowing embers of the open hearth or the flickering shadows on the wall the forms of men and fairies, or grotesque animals. This instinct is especially noticeable when fear has aroused it to people the darkness or an unfrequented wood with nameless monsters. One of the things that helped primitive man to fill the world with spirits must be the phantasies of his mind which seemed to appear and dissolve into the natural objects to appear elsewhere. Under such a frame of mind primitive man came to think of the spirits as dissociated with natural objects but manifesting themselves through them as caprice prompted.

The savage to-day does what No. 68 did. He sees a knotted piece of wood which happens to suggest something to his mind and at once the piece of wood becomes to him the abode of a spirit and is taken home to give protection to him and his property.

In the child there is the combination of the mother-instinct with the fetich.

The child's plaything may suggest the features of a person disliked :

69. F. I had one doll which I never liked, because it resembled a

very disagreeable person. We used to hang this doll on the clothes-line and take turns throwing stones at it.

This may appear a meaningless matter, but it is what is very common among savages and survives in parts of England and elsewhere. To the savage mind anything that looks like a person is supposed to contain a part of the personality of that person. Anthropologists have nearly lost their lives in making drawings of natives because the drawing was supposed to contain the "shadow" of the person it resembled and if any ill should befall it, or any indignity given it, the evil results would fall on the original of the picture. In England it now occasionally happens that a doll dressed to resemble an enemy is taken and filled with pins with the purpose of causing the death of the person it resembles. Salem witchcraft days were full of such tales. It has not passed away in America, as the hanging in effigy, occasionally practiced, re-echoes the old belief that hanging in effigy would cause the death of the person.

§ 6. CHILD MAGIC.

To the savage mind the powers of nature were sometimes friendly and sometimes not. In the child's mind either of these views may be dominant, or the one or the other may be dominant as the child feels it has done right or wrong.

70. F., feels that a large rock near her home would protect her, and she often goes there to cry.

71. F., is afraid of large rocks, especially Sam's Point.

72. —. Between two high rocks is overpowered with sense of awe.

73. —. A group of large rocks caused fear of wild beasts.

74. —, 8, feared big stones, for the bad man who lives under them.

75. —, 6. Rocks suggested strong soldiers.

76. —. Rocks made men strong. It was pleasant to sit on them and talk to them. Always felt safe near them.

Probably very large rocks cause the sense of fear while the smaller ones give the sense of protection. The writer well remembers his childhood terror of large rocks and cliffs, but took keen delight in playing near small boulders. Even with more mature years, he feels *more comfortable* when there are no large rocks or cliffs near.

Two of the most remarkable returns are given here.

77. —, wishes on a stone and spits on it to make things come true.

78. F., 10, visits a white flat stone, wishes over it and throws it over her shoulder to make things come true.

Spitting on the fetich is common among savages and has great potency among the people of northern England.

Throwing stones over the shoulder recalls the myths of Deucalion and Pyrrha. Whether this myth had been told the child and her acts had been imitative, matters not, for the fact that

such things could appeal to the child's mind shows that it is in the same condition as that of the savage.

Stones are worn as charms and any harm to them may bring bad luck.

- 79. —, carries a stone for fear of snakes.
- 80. F., carried a little red stone for protection.
- 81. F., has a lucky stone that she thinks brings luck.
- 82. F., 16, lost a game because the stone was broken and could not win.

When the child vents anger upon any object it is due to the idea, however vague, that it is to blame for all the trouble (see Nos. 38-45 above), or should exert some restraining influence, as the following shows:

- 83. F., 16, got mad one day and knocked a piece off a big stone with a hammer "so it would remember and not let me get mad again."

Other objects than stones are used for luck.

- 84. F. I remember picking up pins, and thinking at the time of the saying that they would bring good luck. I also have stopped when riding or driving to pick up a horseshoe.

A primitive faith cure or shamanism is found in children.

- 85. F., 17. A boy of five emptied his pockets for me. In them were . . . a pill box with imaginary salve to cure your finger if it got hurt, some pretty stones carried "because," etc.

- 86. F., has a friend that has worn a necklace of black amber beads for years and knows that the reason she has had no sore throat is due to wearing these beads.

Instances of this kind might be multiplied indefinitely. In Vermont horse-chestnuts are carried to keep off rheumatism, "sulphur bags" are worn to keep away colds, etc.

"Making believe" is a universal occurrence among children, and exists in countless forms. One common thing is to turn work into play.

- 87. F. When I washed dishes I used to call the knives men, the forks women, and spoons children. The steel knives and forks used in the kitchen were servants. I always arranged them in families. This form continued until I was thirteen or fourteen years old I think.

- 88. F. When I used to be tired of practicing on the piano, I made believe that my hands or fingers were children chasing each other up and down the scales. The other instance was when I was wiping dishes, I called the knives men, the forks women, and the spoons children.

- 89. F., when she washed dishes imagined the dishes were so many orphan children that must have their faces washed before they went to school. If she neglected her dishes she had but to be reminded of the poor orphan children with dirty faces.

Jewels, especially, have a very warm place near the heart of man, and are almost a language of feeling. They are loved and feared and have strange power over human life. For some, pearls bring tears, opals are worst of all and diamonds are best.

90. F., thinks she could not get along without her birth stone, an opal, but would not wear one unless it had been her birth stone.

91. F., has always felt that opals were bad luck and that pearls bring tears. She would not wear either.

92. F., wears a moonstone for luck. She has worn it for eight years and feels she has a friend near.

93. F., when she wore pearls felt blue. Something unpleasant happened.

94. F., made a collection of pretty stones because they seemed so like gems. She wears a lucky pin and carries lucky bones.

Single coins of silver and especially gold are often made fetiches of by adults.

95. F., knows a distinguished attorney who has for years carried a penny given him by an old lady, who assured him that he would not lose any cases.

96. F., carries a lucky penny.

Often one charm has not virtue enough, and as many kinds of lucky articles as possible are worn.

97. F., carries a rabbit's foot for good luck, has a four-leaved clover in her watch, also she carries a lucky penny. She cried when she lost her four-leaved clover.

§ 7. FETICHES OF ASSOCIATION.

One form of fetichism that is extremely common is the souvenir craze. It takes every possible phase from the Colonial Dame who prides herself on her collection of teapots, to the college student that decorates his room with things "swiped" on many a midnight lark. This collecting instinct is due to the psychological law of association in which the familiar object serves as a stimulus to set off the original mental state connected with it. This, in the savage mind, amounts to the law that whatever suggests a thing *is* that thing. This is the psychological basis of the "make believe" plays of children.

98. F. I have often strung buttons together and had a name for each button. I have made a large collection of paper dolls which I do not remember having played with, but had them represent several of my companions.

99. F., asked each friend to give her a bow of ribbon with his name attached. These were placed in a prominent place and a certain degree of reverence was shown them for they were considered as photographs.

100. M., 21. In a box of treasures, when a boy, I kept a blue pill box, a bit of cord, a funny nail, some half-burned colored candles, a wax match, colored glass and paper. Other things were hoarded for many foolish reasons and some without any reason at all.

101. F., 18. I long kept two mementoes, a faded flower from the place where I last saw my little kitten, and the old rag I wrapped around my sick baby chicken.

102. M., 18. When about five, I had a passion for mementoes and would bring a stone from every place I went, to remember it by. I kept my relics to bring up past experiences.

103. F., 29. I lately came across a box of things that were very precious to me as a child. It contained a blue cuff button, two jacks, a glass stopper, an ivory umbrella handle, an empty perfume bottle, shells, a bit of coral, funny letters, many bits of cloth and ribbons, tissue paper, etc. All of my girl friends had such things and we traded much, but allowed no one to touch our treasures.

104. F., 23. Thirteen years ago we went from the East to Chicago. Just as we were leaving, my bosom friend Nellie and I were walking arm and arm, we each picked up a stone and gave the other. Later in Chicago, I would talk to my stone as if it were Nellie. Each of us still cherish our stones and I feel if anything happened to it, something would be wrong with her.

105. F., 16. My uncle I never saw, for he died in the war; but I took great pleasure in and felt great awe over the things kept sacred in his trunk; a spoon, knife, a note-book, a pack of cards, an arrow head, etc.

Nos. 98 to 105 illustrate what has just been said of the law of association as recalling past experiences. This is paralleled in the scalps which the American Indian proudly exhibits and in the thousand and one incidents of savage life where abstraction is impossible and every thought clings to concrete forms.

Nos. 98, 99, 101, 104 and 105 bring out the fact that one cannot love in the abstract. There must be something to keep memory fresh and the heart tender. It is natural to keep the things that remind one of dear friends removed from earthly life and where it does not occur we feel something is lacking in one's nature. The tenderest, best emotions of life are wrapped up in a faded flower or some seemingly meaningless and worthless object. This is nowhere better seen than in love fetiches. Everything that the mistress has worn or touched, be it ever so humble, is sacred to the ardent lover; the perfume she prefers recalls her with overwhelming emotions; souvenirs collected on strolls together are dearer than gold; the ring that acknowledges their engagement is sacred above all else to the maiden's heart from its associations and, perhaps, from a superstitious regard of it. Photographs well show how a savage can look at an image. The lover kisses the photograph and speaks to it as tenderly as if it were the original. Nice distinctions as to appearance and reality never trouble him, unless with the consciousness that the photograph is not as satisfactory as the original.

Others smile at the lovers but "all the world loves a lover," and never is man so close to the past history of the race as when he is a lover.

Articles of food are often regarded mystically. Friends keep half of a cracker each, curious candies, fruit, bits of wedding-cake.

§ 8. CONCLUSION.

While the arrangement of material has been arbitrary, the

fact nevertheless remains that in the child can be found all the elements that, united, made man a religious animal.

As a suggestion in race pedagogy it is well to remember that two milleniums of Christianity has not removed but only modified the old savage traits. Intellectually we have risen above the savage, but in the emotional nature we are about the same as ever. We have but to scratch the skin of the American soldier to find the Tartar, and we have only to go among the most refined American homes and schools to find the old race superstitions surviving in about their pristine strength. In view of this it is folly to expect a South Sea Islander to become a Christian and lay aside his superstitions in one day, nor is it anything against the missionaries that travellers report the savages going to church in the morning and to the old heathen rites in the afternoon. A man cannot make himself over in one day, much less a race.

This would be a dismal world indeed, if every one were confined to cold facts in speech. This survival of animistic ideas in children is proof of its necessity in the development of the race and individual.

Cases like those reported by Dr. Gould (10) often cause parents no little alarm but the child will certainly come out safely if left to himself.

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CHUMS: A STUDY IN YOUTHFUL FRIENDSHIPS.

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This study was undertaken with a view to an analysis of the intimate friendships of childhood and youth with reference to their cause, their influence upon individual development and their place in the evolution of the social consciousness. To doubt that the constant companionship of two individuals exerts a profound influence upon the character of each, is to deny one of the most potent factors in the development of man as a member of society. The pertinent observation of Falstaff applies to childhood and youth even more forcibly than to adults. "It is certain that either wise bearing or ignorant courage is caught as men take diseases, one of another; therefore let men take heed of their company."¹

That the material serving as the basis for this study might be spontaneous and uncolored by critical reflections, I have collected expressions from pupils of the high school grades, pupils who are now full of the experiences in which we are most interested. Instead of the formal questionnaire given directly to the pupil, an outline for a theme was given to the teacher, the theme to be set as a regular lesson in composition. Last February this outline was sent to a number of teachers of English in Illinois high schools under whose instruction were nearly 4,000 pupils. Replies were received giving results from 2,035 pupils: 756 boys and 1,279 girls. From the fact that the pupil knew nothing of the purpose of the theme, the data received have a spontaneity and value which are seldom attained by the questionnaire method.

The outline for the theme covered the following points: the age at which the intimate friendship began; the relative ages of pupil and chum; what attracted the pupil to his chum; how often they were together and how the time together was spent; whether they ever quarrelled; whether likes and dispositions were the same or opposite; whether they ever planned to leave home together and start out for themselves; whether they ever kept secrets from their chums; whether parents ever objected to the friendship and if so, why; and any other points of interest regarding the relations with chums.

¹ Henry IV., Part II., Act V., Scene I.

At the time the theme was handed in the pupil was asked to include with it a statement of present age, number of children in the family, number of brothers, number of sisters, and if either parent is dead, age at the time of death.

I here take the opportunity to express my appreciation of the kindness of those instructors in the Illinois high schools who so generously complied with the request for the material by which this study was made possible; also to thank Dr. Edwin Grant Dexter, Professor of Education in the University of Illinois, and Dr. Stephen S. Colvin, Assistant Professor of Psychology in the University of Illinois, for many valuable suggestions in the development of the study.

THE AGE OF PUPILS REPORTING.

The ages of the pupils reporting, while varying from 12 to 22 years, were 14 in 14 per cent. of the returns, 15 in 25 per cent., 16 in 25 per cent. and 17 in 20 per cent. The percentages for boys are confined quite largely to the ages of 15, 16 and 17 years, being respectively 22.8 per cent., 22 per cent. and 21 per cent. for these ages. But the larger number of girls are 15 and 16 years, the percentage being respectively 26.9 per cent. and 27.5 per cent., while the percentage is but 19.5 for 17 years. These percentages for 16 and 17 years indicate that nearly one-half the pupils reporting are of the later years of the high school course.

WHEN CHUMMING BEGINS.

The ages at which the intimate friendships considered in this study begin, extend from infancy to 21 years. The percentages for these various ages are shown graphically in the accompanying figure. At the extremities of these curves the percentages are low and are almost parallel. But at five years the curve for girls begins to rise and reaches its maximum at 6 in 15 per cent. of the whole number. Then it falls rapidly to 9, when at 10 there is another rise, at 11 the curve falls, but rises again at 12 and remaining the same at 13, falls rapidly to less than 1 per cent. from 17 years to 21. For boys, the curve rises gradually until at 8 years it reaches 10.25 per cent., then falls at 9 to 7.5 per cent. and rises to its culmination point at 10 years in almost 13 per cent. For 11, 12 and 13 years, the percentages lie between 8 and 9, then the fall is approximately parallel with the curve for girls.

These percentages indicate that chumming begins rather earlier with girls than with boys. The age at which the formation of intimate friendships is most common is 6 years for girls and 10 years for boys. For both there is a diminution at 9 years and an increase at 10. An explanation for these facts will



be considered later when we come to discuss the activities and occupations of the pupils during these early years.

THE RELATIVE AGES OF CHUMS.

26.7 per cent. of the boys and 25.9 per cent. of the girls report the ages of their chums the same as their own. Where differences are reported they exceed 2 years in less than 2 per cent. for boys and 1 per cent. for girls. The extreme difference for boys was 7 years.

"I was 14 years old, he 21. We were both pigeon fanciers. As soon as he moved to our town we became constant friends and have remained so for four years."

"He was four years older than I. He was kind to me and protected me from bullies. We spent much time in reading together. . . . At 18 he changed entirely. He began to pay more attention to his dress and began to go in company. He soon deserted me entirely for boys of his own age."

"I was 8 and he was five years older. He was a rough, worthless fellow. He loafed about town and often kept me out of school. We played many pranks and narrowly escaped the police. My parents objected to our friendship very much but did not succeed in breaking it up for a long time. He was sent to a reformatory soon after we quit chumming."

If statements from boys of middle adolescence not in high school could be secured on this question, I surmise they might show a greater tendency for small boys to take up with larger. "The incorrigible often seeks the companionship of smaller and younger children over whom he domineers."¹ This is often evident in truancy. Kline says that in five Massachusetts truant schools, 55 per cent. of the inmates were helped and influenced by other boys.²

The differences in the ages of girl chums exceed 3 years in but 3 cases. One of these is 4 years. The others may speak for themselves.

"I was 12 when we began chumming and she was 17. We each had a horse and spent much time together riding. A lasting friendship sprang up between us."

"I usually desire solitude. At 13 I was attracted by the jolly disposition of a teacher eight years older than I who took a great interest in me. She has been the only chum I have ever had."

The results obtained by E. G. Lancaster in his study, "The Psychology and Pedagogy of Adolescence"³ are quite different. Of 369 statements as to the relative ages of companions sought during adolescence, 227 chose friends older than themselves, 41 younger, and 91, associates of their own age. "Seventy-five per cent. of adolescents seek the companionship of those considerably younger or older than themselves." While this may be true of those in later adolescence in seeking new associates, it does not apply to the intimate friendships of early adolescence and childhood. Although approximately 75 per cent. of the 2,000 persons considered here were younger or older than their companions, the difference is not great enough to be of any significance. The fact that the persons studied by Lancaster were much older and under very different circumstances, may account for differences in results. His conclusions apply to the more advanced ages of adolescence and not to the period prior to 17 years. Or, if older associates are chosen, they are not made chums or cronies of the confidential sort.

REASONS FOR ATTACHMENT TO CHUM.

Many general replies were given showing the necessity for having a chum. A number of these are here reproduced.

Boys. "Every one needs a chum for sympathy." "How can one have a good time without a chum?" "A boy has to

¹"The Incorrigibles," Albert H. Yoder. *The Journal of Psychology and Adolescence*, I, 29.

²Truancy as Related to the Migrating Instinct. *Ped. Sem.*, V, 402.

³*Ped. Sem.*, V., 86, 87.

have a confidant." "My chum cheered me up when I was sad." "Every David has his Jonathan." "We were a team and would fight for each other." "We stood together like a wall built with bricks."

Girls. "One needs a chum for sympathy." "I never enjoy myself without my chum." "A true friend is better than a distant relative." "Without a true friend life is but a wilderness."—*Bacon.* "A chum is indispensable." "I pity a girl who is an only child." "We pretended we were sisters."

Six hundred eight pupils, 188 boys and 420 girls, give as the only reason for their intimate friendship the fact that they lived near each other. Children thrown naturally together are almost sure to be mutually attracted through play interests.

The public school is the occasion for many intimate friendships, 17 per cent. of the boys and 13 per cent. of the girls stating that they were drawn to their friends through school associations. Very frequently the chum is the first acquaintance made on entering school or on going to a new school. The reports also indicate that the Sunday School and church relationships often furnish the basis for intimate and lasting friendships. Other reasons given by both boys and girls were these:

"We were cousins." "Our parents were good friends." "Each had a horse." "Mutual interest in music." (Boys, 12; girls, 20.) "Amiable disposition." "Optimism." "Opposite qualities." "Wit and humor." "Intelligence and good sense."

Boys. "Athletic superiority." "He won a fight with a larger boy." "He lost his mother and needed a friend." "Our mutual interest in electricity." "He was a born leader." "He taught me to swim." "He was good natured and generous." "He was a jolly good fellow." "He was a successful hunter." "His courage and bravery." "His high moral character." "He took an interest in me." "We sold papers together." "He was square and unselfish." "We had the same birthday." "His father was a confectioner" (3). "We were brothers in persecution at school." "He had a rifle." "I was caught in a railroad switch and he saved my life." "His argumentative ability." "We were both pigeon fanciers." "He protected me from bullies." "We were rivals; had a fight; were punished together, and then became chums." "His odd ways."

Girls. "Her sweet temper." "Her lovable character." "We were the only girls of an age in the neighborhood" (6). "We each had bicycles." "Our gentlemen friends were chums." "Our study together." "We were both strangers in a new neighborhood." "Her fidelity." "Her red apron

and white hat." "Her little red bonnet." "Her light hair." "Her sincerity and unselfishness." "We were both lonely." "Her shyness." "Neither of us had a sister." "We both loved Dickens." "She was quiet, I wild." "Her love of mystery and fairy tales." "Her brown eyes and hair." "We were punished together at school." "We both study art." "Neither of us liked dolls." "She has yellow hair, mine is brown." "Her pretty dress." "She is a brunette, I am a blonde." "She taught me to skate." "Our mutual love of reading." "She was a good conversationalist."

A number of these will be noted to be the occasion of the friendship rather than any source of attractiveness in the chum. Neither features of personal appearance nor articles of clothing appear as sources of attraction in any of the replies from boys, but these do occasionally from girls. Perhaps we may make one exception. A girl 16 years of age, who has had a boy chum from infancy, says: "As a child he always liked me best when I was in blue."

From these summaries it would seem that chance association and momentary caprice very largely determine the selection of the chum in these early years. The elements drawing children and adolescents together into intimate friendship are a desire for sympathy, for closer companionship and for mutual confidence. In speaking of early adolescence, Dr. Hall says:¹ "Confidences are shared with those of equal age and withheld from parents, especially by boys, to an extent probably little suspected by most parents. . . . There is now a longing for that kind of close sympathy and friendship which makes cronies and intimates." "There is a yearning to be with and for ones kind."² The time is ripe for the cultivation of consistent altruism and the sensibility to moral courage and heroism is at its height. It is the opportunity for building character, for the adaptation of the pupil to his place in the social group, and is one of the most critical periods in the evolution of his moral attitude.

FREQUENCY OF ASSOCIATION AND OCCUPATIONS OF CHUMS.

Sixty per cent. of the boys and 66 per cent. of the girls state that they were together every day, or "always," or "constantly." Reports from others are scattering and often indefinite. Among the replies are these: "On Saturdays;" "at school;" "at entertainments;" "on Sundays;" "through va-

¹ "The Moral and Religious Training of Children and Adolescents," *Ped. Sem.*, V, 206.

² "The Social Pedagogy of Boyhood," William Byron Forbush, *Ped. Sem.*, VII, 310.

cation;" "two or three times a week;" "rarely;" "as constantly as Mary and her lamb."

The occupations of chums while together are various, but the common games and sports of childhood and early youth greatly predominate. The most numerous replies from boys are: Athletics; hunting; fishing; boating; swimming; bicycling; riding horseback; coasting and skating. In addition these replies occur: Study; playing musical instruments; conversation; working; arguing; walks to the woods; camping out; telling stories; collecting eggs; making experiments in chemistry; experimenting with electricity; studying telegraphy; playing circus; mischief; playing "hookey;" raiding orchards and melon patches. Reading is given as the chief occupation by a number, and one boy says: "We sometimes read one book a day from the library." Replies from girls are also appropriate in this connection:

"We read many books together." "We read the Elsie books, Lord Fauntleroy and many other books aloud to each other." "We read all of the fairy stories in our library to each other."

This intense desire to read has been noted by Lancaster.¹ Of 523 mature individuals, "453 (223 M., 230 F.), have had what might be called a craze for reading at some time in the adolescent period. . . . It is the golden opportunity to cultivate the taste and inoculate against the worst forms of the reading habit. The curve of this intense desire to read begins at 8, rises to 10, and then rapidly from 11 to 14, culminates at 15, then falls rapidly, nearly reaching the base line at 18."

In the occupations of boys the constructive and commercial activities are seen in two cases:

"We made little wagons and sold them to other boys at 20 cents a piece." "We made sleds and kites to sell."

The constructive instinct is strong in almost every boy. He makes wagons, fire engines, machinery of all sorts, builds houses, railroads, traps and whatever attracts his temporary interest. In the appropriate utilization of this instinct lie the essential elements of will training. Trained muscles beget strong wills.

The frequency of such activities as "mischief," "playing hookey," and "raiding orchards and melon patches," indicates the survival of race instincts which so often make their transient appearance in the individual's rapid recapitulation of his ancestral history. This age of savagery appears in the early youth of many who become men of moral worth and integrity. A study based upon data collected from 43 men of this type²

¹*Ibid.*, pp. 102, 103.

²"Some Criminal Tendencies of Boyhood," Edgar James Swift, *Ped. Sem.*, VIII, 65-91.

reveals the fact that larks and adventures, truancy, petty thievery, lying to escape punishment, and other criminal tendencies of various kinds are very common among boys of the best training and environment. Robbing orchards and stealing melons are "almost universal with those having opportunity." "Race instincts are amenable to primitive custom, and not to the laws of civilization."

The activities of girls are markedly different from those of boys, 26 per cent. of those whose chumming began before they were 10 years old give playing with dolls as their chief occupation in their earlier years. "Playing house" also occupies a large portion of the time of girl chums until ten or twelve years of age. Other interests and occupations given are as follows: Playing games; riding bicycles; riding ponies; studying; conversation; going to matinees; singing; playing upon the piano; out of door sports, as skating, coasting, boating, croquet, golf; fancy work; sewing; making candy; sketching; gossiping; dressing up like grown folks. Activities showing the wealth of childish imagination and the hold of the "land of make believe" are shown in the following replies:

"We played theater in our play house." "We played theater and used our garret for an opera house." "We told stories of ghosts, burglars and gypsies." "We imagined ourselves princesses and queens." "We planned to be old maids and always live together." "We planned how we would live in a bower of roses in a secret place." "We spoke of secrets by mysterious names." "We had several pet chickens which we dressed up like dolls." "We held a doll's funeral in our attic." "Our cat died; we had a funeral, and no one was allowed to attend who would not cry." "We had a big funeral when my cat died." "We made plans to capture Santa Claus, but went to sleep before he came." "We spent much time building air castles."

The interest of girls in fairy lore is indicated by these statements:

"We read all the fairy stories in our library." "We spent many hours in telling fairy stories." "We often compared our joys and sorrows with those of children in fairy tales." "We often wrote fairy stories." "My chum wrote fairy tales and I tried to write poetry."

Fairy stories play a much larger part in peopling the imaginary world of girls than of boys. Not content with the stories as they are read and told, the child rearranges the old stories, creates new characters and situations and builds up a subjective world peopled with the children that most please her fancy, and lives with them until new interests and activities absorb her time and attention.

The importance of the imagination in the early life of the child entitles it to more attention than it often receives. A rich creative imagination is an essential element of genius. In robbing a child of fancy, of imagination, "You rob him of his spiritual life," says Francis W. Parker.¹ "Give to the child the full measure of pure, sweet fancy, and then in after life he will see heaven and God and the angels."

Keeping house and playing with dolls, being "grown up folks," is the occupation which claims a large part of the attention of younger girls. The tendency to imitation is strong in both sexes, but it takes more persistent form in girls in their living in miniature the lives of their mothers and grown up sisters. As soon as the boy attains the freedom of forest, field and stream he ceases to live in the occupation of his father and becomes a roaming savage, hunting, fishing and wandering about in quest of adventure. I believe that in this difference lies the explanation for the formation of intimate friendships earlier among girls than among boys. The activities of the boy do not require the intimate relationship necessary for "keeping house" or taking care of the doll family. The boy hunts or fishes or chases cats with any other boy who may be convenient. If he plays games they are usually collective games—two boys are seldom seen alone playing marbles or ball. But the girl becomes the head of her little family of dolls, visits her neighbor who has a like family, and a mutual companionship is formed in the occupation of housekeeping which often develops into a life-long friendship.

At about 10 years of age the boy's interests broaden; he begins to carry his excursions farther; the crowd cannot go on these longer tours, so he needs a chum. Duties, both of home and of school begin to weigh more heavily upon him, and he wants some one with whom to sympathize. Circumstances of environment throw him into the companionship of some one of his own age, and they become inseparable chums, sharing each other's trials and triumphs in play, school and home.

Reference to the figure will show that the curve for the age of formation of chumships falls for both boys and girls at 9 years. The anatomical and physiological changes at this period may account for the mental attitude which causes this drop in the curve. The heart increases rapidly in size at this period and the blood pressure rises very markedly. "The change of blood pressure is therefore one of the first signs of approaching puberty."² Accompanying these physical changes is a

¹ "The Child," Report of National Educational Association, 1889, 480.

² Lancaster: *ibid.*, 68.

mental instability, a fickleness and restlessness which influence his whole attitude and it is not surprising that friendships of this period are unstable and transitory.

The drop in the curve for girls at 11 years is very marked also, here reaching the lowest point between 5 and 14 years. Mental fickleness and instability are greater in girls than in boys no less than are the physical changes of early adolescence. The curve indicates clearly this want of constancy and stability at eleven years of age, the age when the turbulence of puberty begins its regeneration of the whole life, physical and mental.

THE QUARRELS OF CHUMS.

Fifty-one and five-tenths per cent. of the boys and 53.5 per cent. of the girls reporting state that they have quarrelled with their chums. Among these replies "rarely," "seldom," and "once" occur frequently. Replies from girls include a number giving "spats" but not real quarrels. Several state that they quarrelled when younger, but have not done so for several years. A girl of 17 writes: "We never really quarrelled, but we sometimes played quarrel just to see how it would seem." "We had a bitter quarrel because she received the blue ribbon first in a class at school," comes from a girl of 15, illustrating one phase of the perniciousness of the prize system in the school.

A boy of 17 reports a method of settling disputes which is certainly conclusive, if not wholly satisfactory. "We spun a top having red and black stripes; if it stopped on a red line I had my way, if on a black line he had his." Fights are reported by a number of boys, but they seldom sever the friendship. There is one report in this connection worth quoting: "We had a fight in his yard; his mother came out and said, 'Stop when you get done and not until then.'" The mother who has wisdom and self-control enough to see her boy fight a worthy antagonist until they are "done" is doing him a service in the development of manly courage and self-reliance, which are the inalienable right of every individual. While he should be shown that it is contemptible to fight one of inferior powers, he should feel that it is no less cowardly not to resist a boy who bullies him or who imposes upon another younger than himself. "Rather than have your boy a coward, dear mother, the next time he is involved in a righteous quarrel, stand over him and make him fight it out. . . ."¹

Quarrels between chums were seldom very serious, for in but 12 cases for boys and 14 for girls did the quarrels end the friendship.

¹ W. O. Krohn: Child Study Monthly, IV, 195, 196.

LIKES AND DISPOSITIONS.

Those reporting dispositions as opposite to or different from their chum's are 22.2 per cent. of the girls, and 24.4 per cent. of the boys. The remaining number reply that they were the "same" or "similar." In an attempt by J. R. Street¹ to discover the part played by temperament in determining friendships, his results were as follows: Of 189 persons, 46 were attracted by opposite temperaments; 43 by similar; 50 gave no clue; and 50 confused the matter. While no satisfactory interpretation of these data is possible, the evidence from my own study seems to indicate that temperament has little place in the formation of early friendships, environing conditions being more often responsible than temperamental affinity.

ATTEMPTS TO LEAVE HOME.

Eighty-two boys and 40 girls state that either attempts or plans to leave home were made. While this is a small proportion for girls, it is not inconsiderable for boys, being 10.5 per cent. Lancaster² found that of 403 adolescents, "253 (153 M., 100 F.) had a desire to leave home and strike out for themselves, or found home less attractive" at this period. Reasons given by boys for planning to leave home are in nearly all cases questions of discipline or a desire to see the world.

"We could n't do what we wanted to at home." "We were both reprimanded and decided to start out for ourselves." "We wanted to go out West and grow up with the country." "We wanted to work on the railroad and earn money for ourselves." "We packed our trunks and got ready to join an opera company."

The reasons given by girls are very much the same, although a desire to see the world is more frequent than parental discipline.

"We made all our plans to join a band of gypsies, but our parents discovered them before we got started." "We planned to go to Chicago together and work in a department store." "We wanted to join an opera company." "We had a chance to go on the stage; our parents objected and we planned to run away." "We were good singers and wanted to go with a theater troupe that was willing to take us."

The stage seems to be especially attractive to girls. A dissatisfaction with the narrow limitations which surround the child often fills him with a longing to broaden his sphere of vision. Both home life and school are in some measure responsible for this. The emotional enthusiasm, the surplus energy

¹"A Study in Moral Education," *Ped. Sem.*, V, 15.

²*Ibid.*, p. 84.

and the surviving instincts from a remote ancestry all impel the vigor of early adolescence to richer and broader life experiences. Imagination is strong and active. "The desire to leave school, together with a desire to leave home, is a true and natural impulse to adjust himself to the life which he is already living in his imagination in company with his ideals. Sympathy, not punishment, is the proper corrective."¹

DURATION OF FRIENDSHIP.

That the friendship between chums is real and lasting is shown by the fact that of the 756 boys and 1,179 girls reporting, but 12.4 per cent. of the former and 16.6 per cent. of the latter state that the friendship with their chums was broken. Of these 34 boys and 62 girls give as the reason the fact that they moved away from the neighborhood in which the chum lived. 12 boys and 14 girls give quarrels as the cause. Parental objection is occasionally given, more frequently by girls than boys. For the remaining number the usual statement is that "we simply drifted apart after a few years." Of 100 reporting as to whether friendships grew deeper or not at adolescence, in Lancaster's study,² 96 say yes and 4 no.

PARENTAL OBJECTIONS.

Replies as to reasons for parents' objection to chums are as follows:

Boys. "My chum was rough." "I neglected my work." "He got me into trouble." "My parents said we were selfish and exclusive." "He had bad morals." "His influence was bad." "He read bad books, Jesse James, Nick Carter, etc." "We ran away from home."

Girls. "We were together too much." "My chum stuttered." "She had a bad disposition." "She was coarse and vulgar." "My chum was very jealous." "She was boisterous and deceitful." "My chum was a boy, and my parents put a stop to it." "We planned to run away." "She was an 'I don't care' girl." "Because her father went into the saloon business." "She was a willful, spoiled child."

The recognition by some parents of the influence of the chum upon the character of the child is well emphasized in these replies. If one may be judged by the company in which he is found, much more may his worth be estimated by the character of his chum.

¹Lancaster: *Ped. Sem.*, Vol. V, p. 85.

²*Ibid.*, 87.

PUPILS HAVING NO CHUMS.

18 boys and 26 girls state that they never had chums. Their reasons are various.

Boys. "There is a club of 6 of us; I have no favorite." "I do not like the idea of being too intimate with any one." "I have always had a brother for a companion." "My father has been my chum." "Chums are for *only* children." "I prefer reading to close companionship; I treat all boys alike." "My dog has been my only constant companion." "I have too erratic a disposition to make close friends."

Girls. "I am reserved, distant and easily prejudiced; I desire older company." "I believe chums are selfish, I have no desire to be so intimate with any one." "There are no other girls of my age who live near." "I am too moody and sarcastic to be very agreeable." "I prefer reading, and like no one well enough to become so intimate." "I am a minister's daughter, and my parents object to my showing favoritism." "My sister and I are twins, and we need no one else." "I think I am too egotistical." "No one but a teacher of mine fits my ideal of a chum." "I am a recluse by nature, and do not seek companionship." "My two aunts have always been my chums." "My mother and my books are my only chums." "My disposition is not amiable, and I desire no chum." "I study very much and do not care for companions." "My disposition is too changeable to form an enduring intimacy."

In these replies are exhibited some of the conditions which mark the dangers of adolescence. Self-consciousness and self-analysis are the predominating features. In this group are the recluses, the despondents and those who find no companionship with those of their own age. "I am moody and sarcastic;" "I am an egotist;" "I am a recluse;" "I am changeable;" "I desire older company;" "I have an erratic disposition." All of these replies indicate excessive introspection and a failure to have assimilated the training in social adaptation afforded most children by their life in the public school. Careful and sympathetic guidance is necessary to such persons, for without it maturity will find some of them social misfits, of little worth to the world and of small satisfaction to themselves.

CHUMS OF THE OPPOSITE SEX.

Six boys and 13 girls report chums of the opposite sex. Girls were chosen by boys in 5 of these cases because the girls lived near them and there were no boys in their immediate neighborhood. The other boy, at ten years old, took up with a girl chum because her father was a confectioner. Nine of the 13 girls had boy chums because they lived near them and there

were no girls of their own age with whom to associate. Other reasons given are these:

"I was a 'tom boy' and preferred to play with boys." "I liked out of door sports; my girl friends did not." "He liked to play with dolls; I admired his long yellow curls. He used to call me his wife, and I did not object if no one heard." "All my chums were boys for I could not get along with girls at all."

Circumstances of environment account for most cases of intimate friendships between boy and girl, but a small number lie in differences in disposition. A few girls enjoy more fully the usual activities of boys, and occasionally boys are found who are more feminine than masculine in their early years. In none of the cases here considered were the ages of the children above 10 years when the companionship was formed, most of them growing up at 5 or 6 years, and two stating that they began in infancy.

CHILDREN'S CLUBS.

Nine boys' clubs and 8 girls' are reported. Two of the boys' associations are athletic clubs. In three cases reports describe a "shack" or "shanty" where the boys meet for reading, story telling, or warming in the winter after skating or coasting. The purposes of the other boys' clubs are not given. "Big Four" and the "Inseparables" indicate the love for striking appellations.

The purposes of the girls' clubs are given in but one instance. Eight girls formed a club in memory of a favorite companion who died at 14, and the writer says, "the club is well known for its many acts of charity." As has been shown by H. D. Sheldon,¹ philanthropic activities form a prominent feature in the organization of girls' clubs generally. The same study as fully develops the fact that boys' clubs are organized very largely for purposes of muscular activity,—athletics and out of door sports.

RUDIMENTARY INSTINCTS AND PERVERSIONS.

A number of reports indicate the appearance of the instinct for primitive forms of life.

"We camped out for two months and lived as much like Indians as we could." "We built a hut near an old foundry and spent many evenings there." "We built a shanty out of drift wood and often went there to spend our evenings."

Criminal tendencies also appear in several cases.

¹ "Institutional Activities of American Children," *Amer. Jour. of Psychol.*, IX, 428.

"At 15 my chum got already to hang himself, but I got to him in time to save him." "We tried Jesse James tricks, and my chum tried to rob a man; he got a box on the ear and he never tried it again." "We planned to fight a gang of hoboes, but got scared and ran." "Once we tried to whip our teacher, but we got the worst of it."

In girls the desire to annoy others shows itself.

"We used to frighten people as they passed along after dark." "We teased other girls with our secrets."

The feeling of caste, discussed by Sheldon,¹ finds its expression in a number of replies.

"We were very exclusive at school, and paid no attention to other girls." "We invented a secret code for writing notes so that no one else could understand them." "She was low bred, and I soon left her for girls of my own rank."

That our customs, our morality, have been a development, and recapitulation of race history is no less evident in the individual's early social life than it is in his physical growth. From the child's birth to the close of adolescence, its life is a struggle between race instincts and primitive customs on the one hand and the laws and precepts of contemporary civilization on the other.

CONCLUSIONS.

From the above material we may draw the following general conclusions:

At one time in its early years the child forms an intimate friendship with another which is permanent in a very large percentage of cases.

The age at which youthful friendships are formed reaches its maximum at 6 years for girls and 10 years for boys.

Conditions of environment have a larger place in determining such friendships than temperamental affinity or conscious selection.

The constant associations of chums develop the social qualities, provide for the satisfaction of transient race instincts and materially aid in the cultivation of self reliance, individuality and altruism.

Sympathizing with each other, confiding in each other, coming into the closest touch with each other's inmost nature, chums exert a profound influence upon the whole life and character of each other.

The incomprehensible longings and emotions of early adolescence intensified by the mutual confidence of chums, often seek their outlet through avenues of perverse and criminal ten-

¹*Ibid.*, p. 435.

dencies. It is the time when the tenderest care from the home, the deepest interest from the church and the most considerate attention from the school must be thrown about the rapidly unfolding life until the stress and storm of new-born feelings give place to the calm, deliberate stability of an undwarfed maturity.

AN EDUCATIONAL OBJECT LESSON.

By SANFORD BELL, Fellow in Clark University.

The writer recently had the pleasure of spending two days in investigating the work which Principal Raymond Riordon is doing in connection with the Greenleaf Public School in the city of Washington, D. C. The following notes are a brief expression of the impressions resulting from this investigation.

The school is one of the regular ward schools in the poorest section of the city; it comprises the first six grades and follows the same course of study as the other schools in the city's system. If it did merely this these notes would be uncalled for. But the genius of a very unusual young man has taken hold of this school and is using it to correlate all of the educational influences in the community. He has succeeded in more intimately articulating the home and school than I have ever seen done elsewhere. He has more helpfully projected the school into the community and has brought more of the community into the school than I have known any one else to have done under similar conditions,—that is, the conditions that obtain in the usual public schools. He has not waited for the ideal conditions furnished by the best of buildings, the best of equipment, the best of teachers,—if those are the ideal. On the other hand he has taken hold of the conditions as he found them in a tenement district and is demonstrating what the public school can do in bettering the conditions of a community and giving its people, both children and adults, a more masterful grasp upon real life values. As a very vital, helpful influence in the southwestern part of Washington City, the Greenleaf Public School is significant. As an object lesson to educators it is more significant.

The spirit of this school as shown by the relations of pupils to teacher, of pupils to one another; as shown by the happiness, good cheer, content, by habits of industry, politeness, self-helpfulness, mutual helpfulness, self-sacrifice, etc., is not very different from the spirit of the other schools which I visited in the same city. It was a revelation to me as well as a matter of very unusual pleasure to see everywhere I went, the freedom from restraint, the high degree of naturalness among both pupils and teachers; the self-direction and the unabused liberties of the pupils and the absence of the chronic care-worn expression from the faces of the

teachers. It seemed to me that the relations between teacher and pupil regarding the matter of management were as nearly ideal as are possible with our present system of school organization. They have as nearly an autonomous government as seems to me possible among children, without the two bad effects, first, of its being a farce where the teacher is after all the real ruler and second, so affecting the children that they think they do not need the advice of their elders. It was this fact about the Washington schools that so deeply impressed a distinguished English educator who recently inspected them. It is a matter of years of growth and is perhaps due to the influence of no one individual, but I felt that I was not far from its source when I visited the City Normal School that furnishes about fifty teachers each year for the city's corps, and in which the spirit and influence of Mrs. Ida Gilbert Myers, formerly its principal for years, is still so wholesomely and powerfully felt. Mr. Riordon is a product of the city schools and received his professional training in this Normal School.

One of the first things to attract my attention at the Greenleaf School was the school garden. It skirts the fence along three sides of the school yard, is 400 feet long and five feet wide. In it have been planted corn, peas, beans, cucumbers, muskmelons, radishes, lettuce, spinach, turnips, parsnips and such flowers as sweet peas, geraniums, nasturtiums, etc. Two years ago when Mr. Riordon came to this building this strip now used as a garden was packed gravel. The boys dug this up and wheeled it away in wheelbarrows and in its stead wheeled in good rich loam. The seeds which were planted were obtained from the U. S. Department of Agriculture. The entire work of preparing the soil, planting the seeds and tending the plants is done by the children. Home gardens are encouraged for which seeds are supplied to the children. Last year three-fourths of Mr. Riordon's pupils had home gardens. I visited among the children freely while the principal was busy at other things and heard their reports about their home gardens in which both the children and their parents are thoroughly interested. Some who have no yard or garden to cultivate have window gardens. The significance of all of this is largely lost if we do not keep in mind the kind of neighborhood in which this school is situated. Last spring each child had its separate ground plat and supply of seeds. But each plat was necessarily so small that although each child had a variety of different products, he had a very limited quantity of each. This year the ownership is to be in common until harvest time, when an equable division of the beds is to be made before harvesting. The children are raising these products for their home tables or for their luncheons at school. There is no marked boundary between the playground

and the garden and yet I saw no foot-print upon the beds nor a bruised plant. I saw a ball roll over between two rows of beans; the boy who went after it knelt down and carefully reached over and got it. I was told that no teacher had ever directed any pupil to keep off the garden. The fence that keeps them off is in the children. Two small maple trees in the yard were being injured on account of the ground about their roots being packed down during play. The soil for a radius of about three feet was dug up by the children, fertilized and planted with vegetables. The trees have not suffered since.

The playground is full of good suggestions. It occupies two courts about 60 feet square back of the school building. Formerly it was paved with brick in some places and covered with gravel in others and was without shade or equipment of any kind. Now, the girl's court is shaded by a large tent-awning and is provided with a chute, three see-saws, two large double lawn swings, benches, etc., and a large sand pile. Two of the larger girls act as monitors to see that no one gets in the way of the chute. The boys' court is supplied with a combination gymnasium outfit comprising sliding bars, parallel bars, horizontal bar, swing, trick rings, swinging poles, climbing posts and sand pile. This is covered by a suspended awning capable of being adjusted so as to shade the boys' court at any time in the day. Every square foot of space is made to count for the most, either in garden or playground. The school board has not furnished any of these supplies. They belong to Mr. Riordon and the children. I asked him this question regarding the playground furnishings: "What is the best thing about it all?" His prompt answer was, "It makes them all happy, and solves the problem of discipline on the playground. If any one should become fractious, the privileges of the playground would be taken away from him, but that restriction has never had to be enforced." He further added that it kept the children off the street before and after school hours and upon Saturdays. The playground is also open to parents who, at stated times, out of school hours come with their children and enjoy their play and a social hour or two together. The teachers are present upon such occasions and give and receive information that helps to bind home and school together in mutual helpfulness. There is nothing awkward about these meetings. Mr. Riordon is so thoroughly identified with his people that they are not ashamed to come in their working clothes if they cannot come otherwise. Froebel emphasized the fact that we must live with our children. This young man not only lives with his children but lives with their parents, and through his daily visits among them and their visits to the school he is doing his effective work of correlating the various educational influences

of the community in which he teaches. He does not believe that a splendid school building erected and equipped at the public expense for the legitimate purpose of the education of the community, should reach but a small per cent. of that community, and besides be closed all but six hours a day, five days in the week and forty weeks in the year. The public has a right to the legitimate use at all times of such a building, and it is the teacher's duty to make it count at all times for the most in the bettering of the conditions of a community.

A newspaper edited and published each month by the pupils contains much information that is of great value in effecting the sympathetic and intelligent co-operation between the home and the school. A savings bank, which pays six per cent. interest on the money deposited in it, is officered and managed by the children. The following quotation is taken from "The Greenleaf,"—the monthly newspaper just referred to: "Deposit slips are made out as in regular banking institutions and handed with the money and depositor's book to the receiving teller, who makes entry of the amount in the small book. In the afternoon, the book-keeper makes another entry of all of the deposits in a large book. Aside from teaching how to save and not to waste, the bank has the great value of teaching the children how to attend to banking business, something which older heads do not understand. By actually banking money themselves day after day the children soon know how to go about such things as readily as they say their A, B, C."

In the manual training lines the children are taught first of all to do such things as are demanded by the actual need of their school and homes. The girls take care of the recitation rooms and halls. The boys have put electric bells in all of the rooms of the building. They have also put in telephones, doing all of the work themselves. These have furnished an opportunity for the study of some of the problems connected with the nature and uses of electricity. Mr. Riordon sees to it that various things happen to these lines from time to time that disturb their use. The children find and correct the injury. Typewriting is taught, and the children make use of their skill in making out reports, programmes, and in writing announcements, etc. The simpler aspects of book-making are taught, and some of the reports,—for example, the report of the vacation school,—are put out in book form, the contents having been written upon the typewriter by the children. The uses of the mimeograph and hectograph are also taught and the knowledge turned to good account. It is easily apparent that the reason why Mr. Riordon can do so much is that he has the pupils do it for him. Painting is another thing that is taught and made use of in keeping such

things as the wainscoting, door and window frames in order. Carpentry is taught very realistically. The boys have already built two sheds for storing purposes, and are now putting in a hennery which is to provide the eggs for the cooking classes. They are also soon going to begin the construction of a miniature dwelling house upon exact proportions, the masonry, carpentering, plastering, roofing, etc., all to be done by the pupils. The tools of the school are freely loaned to the patrons, who never have yet abused any privilege extended to them. The tool is always returned in good condition and put in its place. The care of the tools and putting them away in their proper places is one part of the pupil's education, and is shared by the parents. In addition to these things, shoe-cobbling, wood-carving, Venetian iron work, weaving baskets and rugs, caning chairs, Raffia plaiting, cooking, marketing, sewing by hand and by machine are taught. The knowledge and skill of the artisans in the community are made use of in teaching both the pupils and parents in this school.

One of the best things which Mr. Riordon has accomplished has been in connection with the Vacation Schools. The first one of these he opened four years ago after having some trouble in getting the use of one of the public school buildings. He gave his own labor free, and had one assistant who likewise received no salary. There were one hundred pupils in attendance at this first summer school. Many more applied, but could not be received on account of the limited accommodations. The school was opened in a district where the pupils had no home entertainment, no playgrounds but the street, and whose parents could not afford to take them to the country during the hot summer months, and who were too busy to look after them during the day in the city. He gave as his purpose, "to make these children happy, to increase their knowledge, improve their morals and lighten the burdens of their parent." The school was so successful and so salutary in its influences that it received the moral support of the best people in the city, and last year was helped out by an appropriation of \$1,000 by Congress. The corps of assistants last year was increased to eighteen. There were 484 pupils, ranging from the kindergarten to the high school in age and development. From the beginning the instruction in these vacation schools has been less formal and more practical than during the rest of the year. Last year there was considerable academic work done. This summer nearly all of the work is to be industrial. The sessions are held during five days in each week from nine to twelve o'clock in the morning. Last year, in addition to instruction in some of the more practical phases of the common branches, there was work in typewriting, electricity, steam, draw-

ing, painting,—both artistic and useful, basket and rug weaving, chair caning, Raffia plaiting, paper folding, wood carving, carpentry, gardening, sewing, cooking and marketing. During the afternoon the playgrounds were open to the children for their enjoyment. The parents were invited to come to the building for an hour each afternoon, during which they were entertained by a special programme of music, recitations, etc., followed by some instruction in practical hygiene and other things pertaining to the home. These meetings were well attended by the parents. The playgrounds were also open to them during the afternoons.

A few illustrations will show how the community at large was further brought into the school. A number of special days were held; upon one of these, District Commissioner MacFarland came to the school and explained the duties of the district commissioners and the nature of the government of the District of Columbia. Upon another day Chief Dutton explained all about the fire department, its chemical engines, system of alarms, etc. Upon the same day Major Sylvester explained the workings of the police department, and Mr. J. H. Gordon told about the functions of the District Court. Another was newspaper day, and the school was entertained and instructed by one of the city editors, a representative of the associated press, a reporter and a printer. Upon another day a druggist came and demonstrated the mixing of certain drugs and gave a talk about simple remedies. Upon Chinese day some native Chinamen furnished music upon their own kind of musical instruments. Various soloists of the city, the Y. M. C. A. Quartette and Mandolin Club, also other musical organizations have shown their willingness to co-operate in this work by donating their services.

Upon Saturdays the children were taken to the country to spend the day. All of the teachers went along to help take care of the children and to reduce the chances for accidents to a minimum. At first the expenses of transit were borne by the pupils and teachers, but last summer General George Harries very generously donated the use of his special cars, thus making these excursions to fresh air and shade and the beauties of nature, free.

Last year the board of education made Principal Riordon director of the system of night schools in the city of Washington. These schools, in most respects, are like the night schools conducted elsewhere. They meet upon three nights of each week for twenty weeks in the year. During the past year there have been such schools in nine of the public school buildings, with an enrollment of 2,149 pupils, and an average attendance of 83 per cent. of the enrollment. In addition to the instruction in

the common branches, typewriting and bookkeeping, there have been classes in cooking in six of the schools (a total of seventeen classes), carpentry in one and weaving in four. At the Greenleaf School special sessions have been held for the parents' classes from 7.00 to 10.30 o'clock upon Tuesday and Thursday nights. The work has been especially adapted to their needs. To the work given in reading, writing, composition, business arithmetic, typewriting, etc., was added work in manual training, such as weaving, carpentry, wood-carving, caning chairs. Parents who had children whom they could not leave at home were asked to bring them along, and they were taken care of and entertained by some of the older girls of the day schools.

The plans for the vacation school that is to open within the next few weeks assign three nights of each week to parents, upon which they are invited to come and inspect the work which the children shall have done during the day and to enjoy the society of the teachers, of one another and of their children. During two evenings of each week they are to receive instruction in cooking, sewing, hygiene of the home, carpentry, wood-carving, weaving, cobbling and gardening. Upon Saturdays the expert cook is going to take the mothers to the markets and help them do their buying in harmony with their means and the instruction which she has given upon food-values. The programme for the day sessions includes work in the following: gardening, carpentry and wood-carving (for both boys and girls), cooking (for both boys and girls), Venetian iron work, weaving, Raffia platting, ornamental paper folding and making artificial flowers, sewing (by hand and machine), cobbling and the kindergarten. Congress has been asked to help this work by a modest appropriation, and has not yet done so, and at the time of my visit the outlook for funds was discouraging. Nevertheless, Principal Riordon and eighteen faithful assistants have pledged themselves to carry the work on without salary or other aid if necessary.

Night schools for firemen were started in two of the engine houses last fall and sessions held one night of each week for twenty weeks. This work was also under the direction of Principal Riordon who personally taught the classes at Truck D. The plan as carried out in these schools was as follows: instruction in typewriting, exercises in word study and spelling, a thorough study each week of the most important current events, local government and the government of the United States; the formation of Congress and its work; our form of government compared with that of England; a study of business letters with punctuation, capitalization, abbreviations, quotation marks, etc; a study of business principles and simple business calculations

and a selection each night from the works of some well known author. "The work was begun with a feeling of doubt and uncertainty,—a feeling that was entirely dispelled after the first night's work."

The work was, first of all, practical and useful. Instead of following one particular line in the arithmetic work, the time was given to a discussion of business principles, business propositions and business papers. Notes, checks and drafts were studied in detail, and the men were given blank forms to fill out, as in actual business. Sometime was given to practice in short methods of calculation, and after the principles of taxes, interest and insurance were explained, problems illustrating these principles were submitted for solution. The words for study in spelling were taken from the daily papers, the object being to familiarize them with the words in common usage. The work in business letters, capitalization, punctuation, etc., was taught principally by the use of hectograph sheets. The lessons usually concluded with a five minute selection from the writings of some standard author. The report of the year's experiment states that the results were far beyond the expectations at the beginning.

One of the most valuable and suggestive projects which Principal Riordon has undertaken is that in regard to a public playground, which he purposes to be operated in conjunction with the public schools in the southwestern part of the city. The proposed lot is just back of the Greenleaf School building a short distance, and is practically 350 feet square, with a parking 12 feet wide around the outside of the fence. This property is at present leased by the District government and is used for the storage of bricks, curbing, etc. It is ideally located for a playground to be run in connection with the school.

The playground is to be equipped with an office, a reception room, sand court, stands, bowling alley, shuffle board, sprinting track, dancing pavillion, skating court, base-ball field, tennis courts, croquet courts, quoit courts, lawn swings, see-saws, tool house, work shop, a number of shelters, toilet houses, baths and a vegetable garden. The total equipment is estimated to cost \$7,028. The playground is not patterned after the playgrounds in other large cities but is planned to meet the specific needs and conditions of the people of southwestern Washington. Its purposes of elevating the morals of the community, of furnishing amusement, rest, healthful exercise, of drawing both sexes of all ages away from worse places and of furnishing a number of positive and helpful disciplines in things intimately connected with the home are too apparent to need further reference.

The systematic arrangement for the occupation of the ball

ground is planned as follows: (1) a league of eight clubs to be organized among the eight churches of the southwest, this league to play three days a week after five o'clock P. M. (2) A league of eight clubs composed of boys who work during the day and of loafers—these to play the remaining three days of each week after five o'clock P. M. To be eligible to this league, the boys must attend the free night school during its session. By this arrangement at least 160 working men and boys will be given a chance in systematic playing with its attendant discipline. (3) A third league of school boys will be organized and given the privilege of playing on four afternoons each week between three and five o'clock. The remaining two afternoons are left open for exhibition games with teams from different sections. Open dates in the schedule of the larger leagues will furnish opportunities for similar exhibition playing. To amalgamate the feeling of friendliness a picked team, composed of the best players of the larger leagues, will organize for travelling games. Pennant winning will be an objective point in all of the leagues. In the off-season basket ball and hand ball will supplant base ball.

Leagues for the systematic playing of croquet, tennis, bowling, shuffle, quoit and other games are to be organized among the working men and working women, the boys and girls employed in stores and elsewhere, pupils from all the schools, members from all the churches, and from the community in general. Work with the gymnasium outfit is planned to be open to all at all times, as is the occupation of the lawns, swings, sand courts, see-saws, one quoit court, and one croquet court. By previous arrangement the artisans whom the weather or other causes at times prevents from working will give off hand instruction to those who care to receive it, and will aid in repairing or making such things as may require skilled labor.

The general care and cleanliness of the playground will be in the hands of a constantly changing cleaning department. Incidentally, a police department will be organized mainly for the preservation of the property and the gradual elimination of such bad habits as that of swearing; the main "swearers" are to be kept longest upon the force. The men most given to swearing are put upon their honor and assigned the duty of breaking up swearing. The matter of autonomous government is to be inaugurated and maintained as far as is possible. Field days are to be held at least once a month. During the summer the grounds are to be open from six o'clock A. M. until ten-thirty P. M.; in winter from eight A. M. until ten P. M.

Mr. Riordon thinks that the success of the whole plan will depend very largely upon the one who is placed in charge of the playground. He says: "That person should be a man

familiar with children, should be known personally by a majority of the children and their parents, should be a resident of the community and should have the respect of all who know him as well as of those who employ him. His knowledge must be practical. He should be jack-of-all-trades,—but particularly master of himself. He must be strong physically, a leader in all the athletic games; a man who has youth, health, brains and muscle in plenty, and above all when working in the interest of others, must have Collis P. Huntington's motto in mind, "Never look at the clock."

The use of this playground is intended to be limited to the people living in the southwestern part of the city. Through parents' meetings at the school, through pulpit and press, but best of all through its own workings, the extent of its purposes would soon be made known to the public. It is to serve the community at large and the Greenleaf School in particular. "Tardiness, insolence, misbehavior at school would be broken up more quickly by excluding the offender a limited period from the playground than by any other means. None would be allowed to loaf upon the grounds. We expect to have sufficient knowledge of what that boy or girl can do at home to help out, to prevent their staying at the yard when the wood has yet to be chopped, or the dishes to be washed." "When men are out of a 'job' we hope to employ them—without salary—around the grounds until work is secured, rather than let them drift to their general lounging places and forget that they are looking for work. All this, of course, must be done through the influence of the schools as institutions and the personal influence of the teachers as individuals." The teachers who work with Principal Riordon during the vacation schools visit at least six homes each day in order that they may keep in sympathetic and intelligent touch with the conditions of the people among whom they work.

The plans further provide for a general club house to be operated as a part of this public playground. There is a property near by and available that would require little remodelling in order to serve such a purpose. When remodelled it would contain a kitchen, reading room, men's parlor, women's parlor, day nursery, gymnasium, pool room, sewing room, sick room, janitor's room, toilet rooms and baths. This would be particularly useful during the winter months. Principal Riordon feels convinced that such institutions as this playground and club house can be made to serve a community much more effectively as parts of the public school than if they were managed in connection with the Associated Charities, because as parts of the school with which the people are already identified,

their meaning is better understood, and the pride and self-respect of the people are better protected.

While it is true that the public playground and the club house to be operated in connection with it are as yet unrealized, their plan is very helpfully suggestive and stimulating. And while there may be some question as to whether the actual work which Principal Riordon has done in using the school to organize the various educational influences of the community is the kind of thing that ought to be done in every community, it is nevertheless true that here is a very valuable object lesson where the real results that have been accomplished throw great light upon the answer to the question.

LITERATURE.

England's Story, a History for Grammar and High Schools, by EVA MARCH TAPPAN, PH. D. Houghton, Mifflin and Company, Boston, 1901.

This book is what its name indicates,—a story, told in an extremely interesting way, simple and direct, written in a flowing style, and sure to interest the boy or girl just beginning English History. The book, however, is not merely a story; it is a careful exposition as well; and although the writer does not attempt to give a complete record, no important details have been omitted. The purposes of the work as outlined by Dr. Tappan in the preface are: "first, to state facts rather than opinions; second, to tell the story of England in such a wise as to make a broad, simple basis for the later study of history and literature; third, while seeking for continuity and proportion, to give special heed to the persons and events that young people would be likely to meet in their general reading." The book contains 370 pages, is neatly bound and pleasingly illustrated. The impression left after a careful reading is that it is one of the few historical texts, which has succeeded in presenting its material in a way suited to the needs of immature students, and which at the same time has neither omitted nor distorted some essential fact.

STEPHEN S. COLVIN.

The Philosophy of the Christian Religion, by ANDREW M. FAIRBAIRN. The Macmillan Co., New York, 1902. pp. 583. Price, \$3.50.

This distinguished author here makes a very valuable contribution to the subject. He first asks certain questions in the philosophy of nature and mind which affect belief in the supernatural reason, such as belief, philosophy of ethics, problem of evil, philosophy of history, of religions, and their founders. The theme of the second book is the person of Christ and the making of the Christian religion, in which he treats the founder as an historical person; the creation of the Christian religion up to interpretation of the person of Christ; the religion of Christ and the ideal of religion. We regard this volume as the most valuable contribution yet made by the writer, and one which every serious student of religious philosophy must ponder.

Facts and Comments, by HERBERT SPENCER. D. Appleton and Co., New York, 1902. pp. 292.

Of these thirty-nine articles, most are slight and some extremely so. The writer cannot repress the strong impression from a perusal of this book, that the venerable author has not added to his reputation, but perhaps the reverse. The diatribe against vaccination; the method of trying to interest flighty young ladies in serious topics on a ride when he does not wish to talk with them; the article on gymnastics; the pleasure the writer takes in the quaint view that rotation on a turning table in such a way as to throw the blood into the head might help mentation; and, in general, the querulousness with which many modern tendencies are regarded, the candid critic must admit savor of weakness and second childhood.

Crime in its Relations to Social Progress, by ARTHUR C. HALL. The Columbia University Press, New York, 1902. pp. 427.

This is volume 15 of the Studies in History, Economics and Public

Law edited by the Faculty of Political Science of Columbia University. It has an introduction of twelve pages by F. H. Giddings, and discusses the evolutionary function and usefulness of crime and punishment; social punishments among animals; crime among savages; savage races in Australia, America, Asia and Africa; European Aryans; Anglo-Saxons in England; England under the Normans and Plantagenets; Parliamentary government and the new feudalism; Tudor England; England under the Stuarts; modern England; has crime increased during the nineteenth century? etc.

Practical Dietetics with Special Reference to Diet in Disease, by W. GILMAN THOMPSON. D. Appleton and Co., New York, 1902. pp. 828. Price, \$5.00.

Part 1 discusses different foods and their preparation; part 2, stimulants, beverages and condiments; part 3, cooking, food preparation and preservation, and the quantity of food required; part 4, foods required for special conditions; 5, digestion; 6, relations to special diseases; 7, for the sick; 8, diet in various diseases; 9, rations and dietaries. This volume is a valuable, up to date compend on a vast subject, which the world has long known to be practical and is just learning to be no less psychological.

The Education of the American Citizen, by ARTHUR T. HADLEY. Charles Scribner's Sons, New York, 1901. pp. 231.

Many college presidents have lately published volumes of various addresses, magazine articles, etc., which are among the most valuable of recent contributions to educational literature. President Hadley here has gathered various articles and addresses of his own, from 1892 down to 1901, on the demands of the twentieth century, standards of political morality, government by public opinion, the formation and control of trusts, socialism and social reform, the relations between economics and politics, economic theory and political morality, ethics as a political science, political education, the relation between higher education and the public welfare, the direction of American university development, fundamental requirements in school education, use and control of examinations, and lastly his inaugural address, entitled—Yale problems, past and present.

Duality of Voice. An Outline of Original Research, by EMIL SUTRO. G. P. Putnam's Sons, New York, 1899. pp. 224.

Six years ago the writer discovered "the voice of the esophagus; the most comprehensive and far reaching of any that has ever been made, not only in regard to the voice, but in regard to the better comprehension of our nature and our entire human existence," which will take rank in the annals of the history of the human race as second to no other discovery. The book is certainly new and interesting in a field long crowded with indefinite mediocre studies.

The Italian Renaissance in England, by LEWIS EINSTEIN. The Columbia University Press, New York, 1902. pp. 420. Price, \$1.50.

The history of the Italian Renaissance in European countries outside of Italy is still but half explored. This volume deals with the scholar, the courtier, Italian merchants in England, Italian political and historical ideas in England, Italian influence in poetry, English Catholics in Rome. It is a fascinating and masterly book, and meets a long felt need.

Democracy and Social Ethics, by JANE ADDAMS. The Macmillan Co. New York, 1902. pp. 281. Price, \$1.25.

In these twelve lectures, delivered at various colleges and extension

centers, the topics chiefly considered are—charitable efforts, filial relations, household adjustment, industrial amelioration, educational methods and political reform. Some of these papers have been printed in journals. The binding and type leave nothing to be desired.

The Story of the Greatest Nations from the Dawn of History to the Twentieth Century, by EDWARD S. ELLIS and CHARLES F. HORNE. Parts 1 to 12 inclusive. 25 cents each. F. R. Niglutch, New York, 1901.

This is "a comprehensive history, founded upon the leading authorities, including a complete chronology of the world, and a pronouncing vocabulary of each nation." Most of the full page illustrations are excellent and very well chosen. The text is clear and concise, and in each number about an equal number of pages is given to pictures and text.

Elementary Physical Geography, by WILLIAM M. DAVIS. Ginn and Co., Boston, 1902. pp. 401.

This work treats of the earth as a globe, the atmosphere, oceans, lands, plains, plateaus, mountains, volcanoes, rivers and valleys, deserts and glaciers, shore lines, the distribution of animals, plants and man. It is illustrated by 190 cuts and has 363 references for supplementary reading following each of the above topics, with a score or two of references to maps. It is very well indexed and contains 9 uncolored maps.

A University Text-Book of Botany, by DOUGLAS H. CAMPBELL. The Macmillan Co., New York, 1902. pp. 579. Price, \$4.00.

The writer has sought to present here, in as compact a form as possible, an outline of the essentials of modern botany. It is not a laboratory manual, but primarily a work of reference, so that no laboratory exercises are given. Being prepared for students in American colleges, the illustrative material is drawn chiefly from native flora. In the taxonomic portion, a conservative attitude has been taken in view of the present unsettled conditions of nomenclature. A short bibliography of only the most important literature is added, and there are nearly five hundred cuts, besides many full page photographs.

Frames of Mind, by A. B. WALKLEY. Grant Richards, London, 1899. pp. 286.

We have here brought together in a tasteful volume the reprinted papers of one of the ablest and all sided dramatic writers on a great variety of subjects connected with the stage.

The Proceedings of the Webster Centennial. The Commemoration by Dartmouth College of the Services of Daniel Webster to the College and the State. Held upon the Occasion of the One Hundredth Anniversary of the Graduation of Mr. Webster. September 24-25, 1901. Dartmouth Press, Hanover, N. H., 1902.

The centennial of the Graduation of Daniel Webster from Dartmouth College was marked by one of the most interesting of recent academic festivities, with notable addresses on Webster's college life; the development of the college since; the Dartmouth Case; laying the corner stone of Webster Hall,—with banquet, processions and games. Many eminent men took part in the exercises, including President Tucker, Ex-Governor Black, Judge Blodgett, George Fred Williams, Edward Everett Hale, Senator George F. Hoar, Chief Justice Fuller, and others. The proceedings make a very attractive volume.

The Evolutionary Philosophy, by L. T. CHAMBERLAIN. The Baker and Taylor Co., New York. pp. 67.

This is a résumé of leading educational writers and perhaps chiefly of Professor Fiske's views. The writer's opinions seem to tally best with those of Drummond, and quaintly enough his little digest ends with the Apostle's Creed.

The Paidologist. Cheltenham, England. Vol. 4, No. 1, April, 1902.

This number contains leading articles on children's tunes, heredity, caution in child study, early drawings, and a Saturday school, with the usual number of interesting reviews.

Studies in Education, edited by Earl Barnes, Philadelphia. Vol. 2, No. 3, May 1, 1902.

This number contains the following five articles: children and animals; children's pets; studies on children's drawings; children's stories and poetry; type study on ideals.

Tarr and McMurry Geographies. Supplementary Volume, Ohio, by STELLA S. WILSON. The Macmillan Co., New York, 1902. pp. 100. Price, 30 cents.

The Elements of Greek, by FRANCIS K. BALL. The Macmillan Co., New York, 1902. pp. 283. Price, \$1.00.

This is a presentation of the principles of Greek grammar in the very brief form made possible by systematic correlation and interdependence of the topics.

The Child Life Fifth Reader, by ETTA A. BLAISDELL and MARY F. BLAISDELL. The Macmillan Co., New York, 1902. pp. 272.

The selections in this excellent series of readers are carefully designed to fit the stages of natural development of the child's interests. An unusually large proportion of these extracts are from the standard authors.

A Guide to Literary Study for the Teacher, Student and General Reader, by OLAF MORGAN NORLIE. 1901. pp. 47.

The writer believes that in the classics we have the true foundations of literary study. In the second part of his pamphlet, he discusses the value and methods of such study, and in the appendix classifies poetry and gives other points worthy of consideration. He has much in view the effect of literature in forming character.

Ausgewählte Märtyreracten und andere Urkunden aus der Verfolgungszeit der christlichen Kirche, von OSCAR VON GEBHARDT. Alex. Duncker, Berlin, 1902. pp. 259.

These Acta Martyrum Selecta are gathered from various sources as on the whole in the author's judgment the most valuable, and are addressed chiefly to theological students. The text is entirely in Greek and Latin. There has evidently been the greatest care to secure accuracy in the text and great wisdom in the selections. The annotations give abundant evidence of large and ample scholarship on the part of the author.

L'Université et la Société moderne, par GUSTAVE LANSEN. A. Colin, Paris, 1902. pp. 122.

This is chiefly a treatise on secondary education, and discusses the living and classical languages, the baccalaureate, administrative and educational reforms, and their obstacles.

Parables of Life, by HAMILTON W. MABIE. The Outlook Co., New York, 1902. pp. 103.

These are eleven papers on topics of central interest to all who are in earnest about life. They are dedicated to Lyman Abbott.

Richard Wagner's Rheingold. Edited by Richard A. von Minckurtz. Neuson & Co., New York, 1901. pp. 102.

The German text is here given with sufficient annotations and with an introductory life of Wagner and a description of the Trilogy.

A Text-Book of Applied English Grammar, by EDWIN H. LEWIS. The Macmillan Co., New York, 1902. pp. 163.

The Public School Arithmetic for Grammar Grades, by J. A. MCLELLAN and A. F. AMES. The Macmillan Co., New York, 1902. pp. 369.

The Preliminary Announcement of the Collegiate Department of Clark University, Worcester, Massachusetts, by its President, Colonel CARROLL D. WRIGHT, under date of June 4, 1902, states that instruction for the first or freshman year will begin October 1 next, and that no candidate will be received who does not sign a declaration of intention to remain during the course. Under the will of the Founder, this will be three years, and for the first year there will be no charge for tuition. The second year the tuition will be \$25, and the third year \$50 for each student. Students for the present will be limited to young men, and admission will be by certificate.

The regular course of instruction is comprised in eleven departments:—mathematics; English; the English language and literature; history; physics; chemistry; biology, including botany and zoölogy; modern languages; French, German and Spanish; political science and civics; economics and sociology; psychology, ethics and philosophy; Latin and Greek; the Latin and Greek languages and literature. The first year six subjects must be offered, and the announcements in the department of economics and sociology are of special interest. It is intended to provide the highest class of work.

THE PEDAGOGICAL SEMINARY.

Founded and Edited by G. STANLEY HALL.

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No. 3.

EDITORIAL.

Mr. Brockman finds that seventeen is the age of most frequent conversions and of greatest interest in religious ideas among 251 students in preparatory schools; that there is great religious perturbation in the middle and later teens; that doubt is a good clarifier. His students and standpoints are those of Protestant Orthodox Christianity.

Miss Lillie A. Williams contributes a valuable and really new article with tables of favorite sounds, words, geographical and personal names. She concludes that those beginning with r and l, and for girls those of flowers are most popular. In an interesting slang curve, it appears that the greatest pleasure is found in this at the age of from thirteen to sixteen. Pleasure in the motor side of speech seems to decline at adolescence, but there is an increased interest in pronunciation, especially of new words, as instruments of thought. The immense importance of hearing in the affective side of language is clearly brought out.

President Frederic Burk's contribution to drawing interest is divided into muscular, imitative and visual. His table shows that with children from five to ten interest in the human figure predominates, and that still life, plants, houses, animals lead, and geometrical design comes second; while from eleven to seventeen the human figure has very little interest and animals have greatly declined. Especially interesting is his parallel col-

umn method of showing the difference between the logical and genetic order.

Mr. Arnett has collected a great body of facts on nest building in the animal world, the development of the nest, burrows for home and for young; and then passes to the consideration of primitive human habitations, the development of the hearth as the center of the home, fire, cooking, the social interest, marriage, love, etc.

Dr. Kinnaman has collected by correspondence an interesting body of facts to show the difference of the educational departments in American colleges, especially twenty-two which were selected for special study.

The Editor reprints a brief address.

An anonymous author furnishes a psychological skit.

Dr. Margaret K. Smith reports on geography.

A STUDY OF THE MORAL AND RELIGIOUS LIFE OF 251 PREPARATORY SCHOOL STUDENTS IN THE UNITED STATES.¹

By, F. S. BROCKMAN, Shanghai, China.

Four years ago, Dr. Luther Gulick and myself sent a letter and accompanying questions to a carefully selected list of college and theological seminary students. My aim was a purely inductive one. I wanted simply the plain unvarnished facts. It was felt that it would not do to question young students about these matters, accordingly I secured my data exclusively from college and theological students. I have not commented on the facts secured to any great extent, as they carry their own message. Neither do I attempt wide generalizations. These are the facts plainly stated from 251 persons. They were from many institutions, and included North, South, East, and West in their geographical extent. In the preliminary study of the topic, I was much helped by papers in Clark University publications. Since coming to China, I have compiled the data secured in America.

I can but feel that the most successful religious work depends to some extent on investigations of the religious life. This paper can be viewed as merely a scouting trip. That it may be of some service to the leaders of young men in educational institutions, is my earnest hope.

Two hundred and fifty-one replies were received from students in about seventy-five different colleges, universities, and theological seminaries, in all sections of the United States east of the Rocky Mountains. Almost without exception, the blanks were filled out with seeming care and conscientiousness.

The average age of those replying was 23½ years. More were 23 than any other age. None were under 16; only 14 were over 30. Blanks were not sent to preparatory school students because it was thought that the college students would be able to give more intelligent and discriminating replies. On

¹The accompanying paper was made by a fellow worker of mine, Mr. F. S. Brockman. He was personally known to the men to whom the blanks were sent. The care with which they were filled out was a result of this personal acquaintance. Mr. Brockman was then one of the secretaries of the college department of the American Young Men's Christian Association. He now has charge of that work in China.

LUTHER GULICK.

the other hand, blanks were not sent to older persons because it was thought the college student would retain a more vivid recollection of his school days. It should be borne constantly in mind throughout the study that the replies are thus from the standpoint of the maturer adolescent. They are from the standpoint also very largely—as the replies to Question 4 reveal—of Christians. From the nature of the questions, it was not deemed wise to distribute them indiscriminately among a body of students.

Age of Joining the Church. There were 247 replies to this question. Ten were not church members. The average age of joining the church is $15\frac{1}{4}$ years. More joined the church at 14 than at any other age. It is perhaps worthy of note that the average age of joining the church is a little lower than that of conversion, and that 14 is the age when the largest number joined the church, while 17 is the corresponding age of conversion.

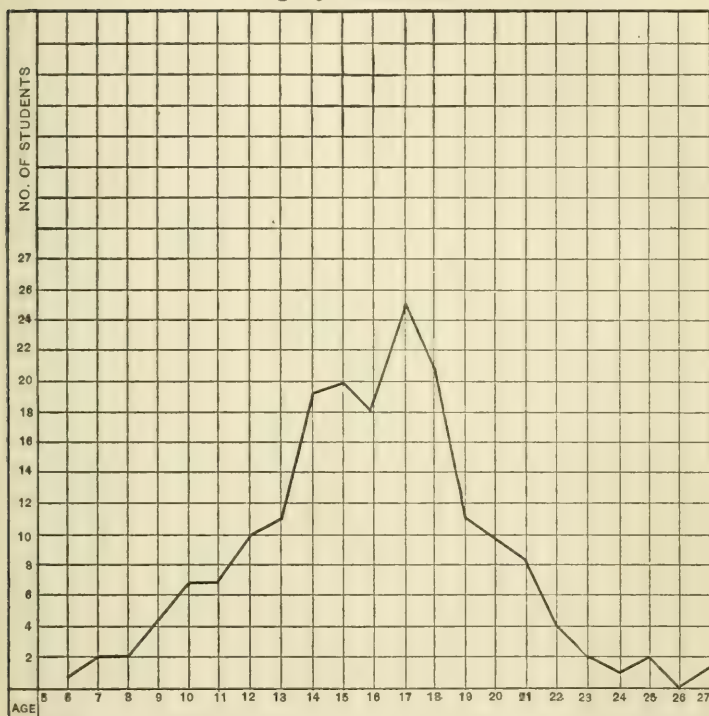
Age of Conversion. Two hundred and forty-six students replied to this question. Twelve said they were not converted; five did not know whether they were converted or not; 37 could give no definite time of conversion; 189 knew the date. The average age of the conversion of these 189 is $15\frac{1}{2}$ years. From Table I, it will be seen that a larger number were converted at 17 than during any other year. There were only three who asked for further explanation of the term conversion, or otherwise gave indication that they doubted the reality of the experience. These replies were as follows:

- (1) "Not in the technical sense your term indicated. Did not become a Christian. Always have been."
- (2) "The term is so indefinite I do not know what you mean."
- (3) "What do you mean? I am being turned about every year. I started a new life at age of ten, but have not yet reached the stature of the fullness of a man in Christ Jesus."

A large percentage of the 37 who could not remember the time of their conversion described it as a gradual process. Here are a few typical replies of those who said more than simply, "*I do not know when:*"

- (1) "Grew up in the church and had no definite time."
- (2) "It has been a gradual, but almost unbroken growth of love of God since infancy."
- (3) "Was raised in church and Sunday School. Not suddenly converted."
- (4) "The process was gradual, not sudden."
- (5) "Grew up in church. Don't know of such a stage. I have no date."
- (6) "Yes. I think the growth was gradual, and not due to any particular incident."
- (7) "I know of no definite moment which I can look back to as the time of my conversion."

TABLE I.
Age of Conversion.



It was interesting to see whether the replies threw any light upon such questions as these :

(1) Was the Christian experience of those suddenly converted different from that of those with whom conversion was a gradual growth? In other words, are Christians who have been suddenly converted more or less apt to live right than those gradually converted?

(2) Is there any relation between Christian homes and the method of conversion?

The blanks were carefully examined with these two points in mind. There was no appreciable difference discernible between the Christian life of those suddenly and gradually converted. The home influences of those gradually converted, however, were better than those giving exact time of conversion, the distinctly Christian homes where father and mother were both active Christians in one case being 84%, and in the other 73%. It is doubtful, however, whether the numbers are large enough to justify any conclusion.

Table I shows the number of conversions for each year. It

TABLE II.

Age of Greatest Responsiveness to Religious Ideas.

is compiled from the replies to Question 3. Table II is compiled from the answers to Question 5, and shows the age of greatest responsiveness to religious ideas. The similarity between the curves in Tables I and II, and the prominence of teens in both tables leave little doubt that with most adolescents the years about 17 are apt to mark a religious crisis. There has been much written and much study given within the past few years to the physiological and psychological aspects of adolescence. The physiologist has called attention to the increased volume of the heart, the broadening of the shoulders, the hardening of the muscles, the elongation of the vocal chords, and other physical changes which mark the dawn of this period, and has laid down the principles which underlie the physical training of youth. The psychologists have studied the hopes, dreams, tempestuous passions, influx of new sensations, and general unstable mental equilibrium which characterizes youth and young manhood, and pedagogy is being readjusted in the

light of their investigations. Facts like the above lead one to ask whether the religious aspects of adolescence do not need to be studied as well. Certainly no religious leader can look at the facts which these three tables reveal without raising the question whether the seventeen-year-old youth has been given the attention which the moral and religious crisis of his time of life demands. The day when the young man is most prone to drift out of the church and easiest to turn to the church is the same. The Spirit of God is sovereign, and may deal with a man at any time; no one can set bounds for His working, but the wise leader in Christian work may reverently study His usual times of visitation and modes of operation. There is an element of transitoriness in the religious as well as in many other instincts. It has its flood and its ebb. It has its time of ripening and then unless cultivated and fixed, a time of almost disappearance. Prof. James says concerning the intellectual life of students: "Outside of their own business the ideas under twenty-five are the ideas that serve for life. Disinterested curiosity is gone, the mental grooves and channels set, the power of assimilation gone. It would probably lead to a more earnest temper on the part of college students if they had less belief in their future intellectual potentialities, and could be brought to realize that whatever physics, political economy, or philosophy, they are now acquiring, are for better or for worse the physics, political economy, or philosophy that will have to serve them to the end." It is an equal folly to trust in the future religious potentialities of a young man of seventeen.

Motives for Becoming A Christian. There were 244 students who answered Question 6, giving the motives which induced them to become Christians. In order to give a better idea of the replies, a few are given in full. They are selected at random except that the brief replies simply naming a motive in the blanks are omitted, as they are shown in the list which is given later:

(1) "This is a hard question. I doubt not all these were components of the resultant motive. The uppermost thing was approval of God." (Age 22, conversion, gradual process.)

(2) "When a young child, I became a Christian as I thought; it was through fear of hell. My real Christian life began with a revival under Mr. H. I was strongly influenced by a longing for clean life and heart." (Age 19, converted young, but don't know just when.)

(3) "I think the reason I became a Christian was because I loved my parents, and they taught me to love God; but I shall have to say I have done Christian acts which I should n't have done had no one been looking at me, but I have done a few when no one knew it." (Age 17, converted, 7.)

(4) "I grew tired of living a *moral* life. I felt that there was a higher life for me. I was strongly convicted of sin. There was also a deep sense of God's love for me." (Age 25, converted, 25.)

(5) "Not altogether on account of conviction of sin. I was reared

by Christian parents, and joined the church without much thought one way or the other." (Age 25, don't know when converted.)

(6) "I was led to become a Christian from a deep conviction of sin and a desire to get others to be saved." (Age 28, converted, 14.) (Very characteristic reply.)

(7) "First, external punishment, and second, my recognition of the intrinsic value of Christianity to man and nation, and my conviction that without it the true, manly, noble life is impossible." (Age 22, converted, 14.)

(8) "Never any fear in it. I don't like the idea now. It seems to me to be obsolete—no remorse, nor conviction, but God's love and an ambition to lead an useful life." (Age 20, converted, 11.)

(9) "Conviction of sin and feeling of God's love." (Age 23, converted, 13.) (These two motives are often thus joined.)

(10) "Was much dissatisfied with my life, felt a constant unrest. It was not fear of eternal punishment, but soul hunger which I can't describe. And I had no doubt but that all the rest of the family would be saved, and to think of being separated from them was terrible; and then the consistent life of my mother made me long for the power to become like her. And when I realized how unthankful I had been, and how much I needed God's help to live even a decent life, I called on Him and found salvation." (Age 33, converted, 20.)

(11) "It was the love of God which influenced me. Great revivals had had very little influence upon me, but the love of God influenced me as nothing else and led me to a full submission to Him." (Age 28, converted, 21.)

(12) "Fear of torment, conviction of sin, and especially a desire for God's love and freedom." (Age 34, converted, 16.)

(13) "Desire for approval of others to some extent. Most of all, the sense that I ought to be a Christian in view of all that God had done to that end." (Age 27, converted, 16.)

(14) "Owing to the fact that I was carefully guarded by true Christian parents, I felt no strong convictions of sin; but I became a Christian more from a feeling of God's and a desire for approval of others." (Age 24, converted, unknown.)

(15) "I believed it the right thing to do." (Age 25, converted, 18.)

(16) "I do not believe any had much influence. A natural religious demand was always in me. I am religious because I *feel better so*." (Age 23, converted, unknown.)

(17) "If I know myself rightly, remorse and conviction of sin and a desire to do good in the world led me to become a Christian." (Age 22, converted, 17.)

(18) "I think that I am a Christian. If so, it is because of the carefully thought out decision that to be a Christian was sensible, reasonable and right. Parents' influence strong also." (Age 19, age of conversion unknown.)

The motives mentioned, with the number of students naming each, is as follows:

Fear of eternal punishment, 69.

Remorse, 29.

Conviction of sin, 104.

Feeling of God's love, 86.

Desire for approval of others, 32.

Can't tell, 5.

Desire for the rewards of God's children, 2.

Desire to get the joys of heaven, 4.

Feeling that a Christian must be most happy, 1.

- Desire to meet my own in the beyond, 1.
- Search for happiness, 2.
- Desire for the peace of the Christian life, 1.
- Desire for Christian service, 1.
- Philanthropic desire, 2.
- Desire to help others escape sin I had dealt in, 3.
- An ambition to be somebody and do something great, 1.
- Realized it to be the plan of salvation and wished to participate, 1.
- Determination to make the world better by my life, 1.
- Desire for what would give me the most profitable life, 1.
- Desire for a life which would best influence fellowmen to become Christians, 1.
- Desire to do good, 1.
- Conviction only way to realize object of life, 3.
- Dissatisfaction with my life, 3.
- Desire to be better, 4.
- Recognition of intrinsic value of Christianity to man and the nation, 1.
- As I was, I could not accomplish that which life was meant for, 1.
- Realization it was the only life to live, 1.
- Realization the powerful life is the spirit-filled life, 1.
- Conviction all best men are religious, 1.
- Conviction that without it true, manly, noble life was impossible, 2.
- Ambition to lead useful life, 3.
- Try to use every effort to lead better life, 1.
- Christianity better fitted for me than any other religion, 1.
- Feeling of oughtness, 2.
- Sense of duty, 13.
- Conviction I ought to be for Christ, 1.
- Feeling I was working contrary to God's great plan, 1.
- Conviction it was right thing, 7.
- Feeling it was best way to live, 1.
- Wanted to be right, 8.
- Desire to do right, 2.
- Longing for clean life and heart, 2.
- When I realized God willed my salvation, 1.
- Carefully thought out decision that to be a Christian was right and sensible, 1.
- Desire to improve my life, 2.
- Consciousness of my untenable position, 1.
- Feeling of condemnation that I was wrong rather than definite fear of eternal punishment, 1.
- Inability to free myself, 1.
- Sense of my own weakness, 3.
- Inability to live right without God, 3.
- Realization of Christ's power to deliver me in time of temptation, 1.
- Need of a saviour, 2.
- Feeling that there was something lacking in my life; that it was not what it ought to be, 1.
- Some indescribable drawing toward Godly things and the church, 1.
- Soul hunger. Can't describe it, 1.
- Yearning for what I did not have, 1.
- Inborn inclination, 1.
- God wanted me and I wanted Him, 1.
- Desire for God's love, 5.
- Desire to be in unison with God, 1.
- Desire to please God, 2.
- Desire for God's guidance, 1.
- Desire to get right with God, 1.

Sense of Christ's desire to save, 1.
 Love of Christ ever before me, 1.
 Love for Christ or God, 4.
 My promise to do so if God spared my mother, 1.
 My mother's counsel, 1.
 Desire to be at one with Christian friends, 1.
 Feeling that now was the time if I ever expected to, 4.
 To do myself justice, 1.
 Tired of living a moral life, 1.
 Desire to be right with the world, 1.
 Trained up to it; never knew anything else, 1.

Although many motives are almost the same, I have thought it best to thus give the entire list so that even the shades of meaning may be detected. We may classify them roughly as follows:

- (1) Conviction of sin, 104.
- (2) Feeling of God's (or Christ's) love, 86.
- (3) Fear of eternal punishment, 69.
- (4) Feeling that it was right to be a Christian, 44.
- (5) Feeling that Christianity was necessary to the highest usefulness to their fellowmen, 33.
- (6) Desire for approval of others, 32.
- (7) Remorse, 29.
- (8) Desire for the reward of God's children, 11.
- (9) Sense of weakness, need of God's strength, 11.
- (10) Desire for God's love and fellowship, 11.
- (11) Indescribable drawing, 4.
- (12) Miscellaneous, 12.

The following are some of the impressions and questions which abide after a study of the replies to this question:

(1) What have been called the "old-fashioned motives" are far the strongest. It seems unfortunate now that any motives were given in the blanks. This doubtless called special attention to them and caused them to be mentioned oftener than otherwise. It is also doubtful whether such expressions as remorse and conviction of sin, stand for similar phenomena in every case, being terms often used in religious meetings and literature. Even when these considerations are taken into account, however, the predominance of the conviction of sin and love to God is most significant. The wickedness of sin against a loving God is still the fact to press upon young men if one would be most successful in bringing them to change their lives.

(2) It is equally true that fear is a most powerful motive. The fear of hell is much stronger than the hope of heaven. On the other hand, seven students took occasion to call attention to the fact that no fear existed in their minds, and their replies seem to indicate a revulsion of feeling at the very thought of its being mentioned as a motive.

(3) The number influenced by the feeling that Christianity was necessary to their highest usefulness to their fellowmen,

and that it was right to be a Christian, or by what may be called philanthropic and philosophic motives, deserve our attention. When taken together, they are one of the strongest appeals. Their frequent mention is the more striking because they were not named in the blanks. Dr. Burnham, of Clark University, in a most able article on adolescence, *Pedagogical Seminary*, Vol. I, p. 174, has called attention to the great influx of philanthropic desire, and the birth of the philosophic spirit during adolescence. These replies tend to confirm his conclusions: The Christian worker may assume with confidence that most young men want to be right, wish to have their lives in harmony with the plan of God, and therefore, that a strong appeal to their sense of duty will not be without avail. He may feel sure also that to hold out the possibilities of usefulness to a Christian, and the certain injury to many others besides one's self in living in sin, will find a ready response in an almost fanatical love for men which is now ripening in the young man. This is the day when he is a reformer and dreams of the time when he will purify *church* and state, break the chains of the social slaves, etc., etc. He needs but to be shown that none of his lofty ideals are possible without becoming a Christian, and at once he has an overwhelming motive for becoming one. This is why a missionary address is sometimes the best gospel message. Frequent appeal should be made to the heroic.

(4) The desire for the approval of others is mentioned oftener perhaps than one would have expected. It is frequently marked, however, as the secondary and less strong of two motives, and almost never given alone—the parents or some other member of the family are usually mentioned as the ones whose approval was desired. The family tie is still strong.

(5) One naturally asks the question whether there is any relation between motives and the age of conversion. The replies were divided into three groups according to the age of conversion: (a) 5-12; (b) 13-17; (c) 18-35, and then examined with reference to motives. Fear of eternal punishment, conviction of sin, and feeling of God's love, were equally strong with all ages. The philosophic and philanthropic motives were equally strong in (b) and (c), but almost wanting in (a). The only instance where the sinner's love for God or Christ was a motive was with children under 12.

(6) Another question which arises is whether there is any connection between motives and stability and consistency in religious life. Here also a longer number of papers would need to be examined. No certain light was thrown on the question by an examination of the papers.

Reasons for Not Becoming A Christian before leaving Prepar-

atory School. There were 61 replies to Question 10 which may be arranged in a table as follows :

	Partly.	Yes.	Total.
(1) Was it because you did n't believe Christianity to be true?	5	1	6
(2) Was it because you postponed a decision?	7	29	36
(3) Was it because you were unwilling to give up something?	2	21	23
(4) Was it because you were repelled by men or methods?	10	7	17
(5) Was it because of the influence of companions?	14	7	21
(6) Was it because you were not approached?	5	11	16

The following are in answer to sub-question under (3), "what things were you unwilling to give up?"

Fear of not having a good time.

Giving up fun and being solemn and sober.

So-called doubtful amusements.

Rebelled against idea of the ministry.

Ambition.

Ideas of independence and enjoyment. Christianity seemed too strict and sanctimonious.

Intimacy with old friends.

Fear of ministry or missions.

Impurity and drink.

Put off decision that I might satisfy sexual desires.

Profession of law.

Profession of law.

Fear of living a Christian life.

A good time.

Impurity had some hold, but mostly companions.

Dancing.

Love of the world.

Dancing probably.

Liberty from appearing stiff and saintly.

The following are some of the replies to (6) which indicate the demand in the preparatory schools for personal work :

(1) No one really asked me and urged me to become a Christian after the age of 12. Living an outwardly good, moral life, they may have thought I was a Christian. But for those six years, I was almost persuaded and no one ever tried to get me fully persuaded and definitely decided. I used to avoid prayer-meetings, especially revival-meetings, for fear of being asked.

(2) I do not remember *any one* asking me to become a Christian during my life-time. Perhaps there was an occasion, though.

(3) No one ever spoke to me, and so I was not in the least interested.

(4) There was no friend to whom I could trust, and who would help me to keep the resolutions I made.

The following replies will indicate the delicacy and difficulty of work with young men of this age, and the need of more skill in it :

(1) "I think one strong reason for my neglect of and distaste for Christian life was my parents strongly urging me to be a minister, for

which calling I had and have no inclination or call. Also the attempt to preach when I secretly disliked the work."

(2) "It has generally seemed to me as if the Christian's interest in men's soul is a forced one. It is all done for Christ's sake and not for the sake of the individual. It is the Christian's duty to do all he can to save souls, and he seems to me to take very little interest in saving the man because he has any interest in the man himself. For this reason, no one has very much influence with me."

(3) I went forward at about 15 at a revival meeting held by a man who appealed strongly to our feelings, and I was not really converted, and I have noticed that most of his converts have become back-sliders. I think this one episode caused a feeling of hostility that lasted some years. I think it had a bad influence on me on the whole. Ever since, I have been strongly opposed to this kind of evangelists."

(4) "There was several years ago, a purely emotional revival held in our town. Many of my associates were affected by this, but of course, *nearly without exception* they all back-slid. This was to me something very repugnant."

Probably the two things more worthy of note under the replies to this question are the small place doubt of Christianity plays with preparatory school students, and the dread they have of sanctimoniousness and solemnity.

Most Powerful External Influences in Conversion. There were 236 replies to Question 7. The influences named were as follows with the number of times each was mentioned :

A friend's talk with you, 103.

Preaching, 96.

Example of others, 86.

Home influences, 37.

Reading, 11.

Sunday School, 10.

Mother's prayers, 7.

Prayer, 5.

Bible study, 5.

Y. M. C. A. meetings, a letter, lectures, study of philosophy, prayer-meetings, singing with young people, etc., etc., etc., 31.

The prominence of personal work is too evident to require comment. Under the example of others, the parents are most often mentioned and particularly the mother. It is an interesting fact that while the influence, example, and training of the mother is mentioned many times, her talks are almost never mentioned as an influence in conversion. It is a "parent's influence," and a "friend's talk," which seems to influence. The often noticed restiveness which the youth shows under the admonition of his father or mother is not a sign that their power over him has gone or even weakened. It may be painful to them that he seems more inclined to bestow his confidences on a comparative stranger; but it is questionable whether it is wise to try to interfere with this evident natural tendency.

Circumstances of Conversion. In reply to Question 8, asking

under what circumstances the Christian life was begun, there were 241 replies as follows :

- In a revival, 121.
- Alone, 41.
- Don't know when, 38.
- In regular church service (including prayer-meeting, Sunday School, etc.), 19.
- While a friend was talking with you, 18.
- Special children's service, 2.
- Young People's Society convention, 1.
- Week of prayer, 1.

Severest Temptations of School Days. To Question 12, there were 232 replies, not counting 4 which were clearly evasive. Six said they had no temptations. The other answers may be arranged in the following tabular form, giving in the first column the number who named the sin as one of their strongest temptations, in the second column the number who yielded to it, in the third, the extent of yielding where this was mentioned:

	Strongest Temptat'n.	Yielded to.	Extent of Yielding.	
			Slightly.	Much.
Masturbation,	132	131	57	69
Sexual Intercourse,	66	17	10	5
Laziness,	57	36	18	9
Lying,	44	32	19	6
Dishonesty,	33	24	18	6
Swearing,	32	22	10	10
Impure Thoughts,	15	12	3	3
Strong Drink,	10	8	7	2
Familiarity with a girl,	5	5		2
Tobacco,	4	3	1	2
Listening to and relating Impure Stories,	4	2		1
Ill Temper,	4	4	2	2
Procrastination,	3	2	1	1
Gambling,	2	2	3	
Doubt,	2	1	1	
Carelessness,	2	2		
Dancing,	2	2	1	1
Sexual passions,	2	1	1	
Fear of popular opinion,	2	1		
Selfishness,	2	2		
Miscellaneous,	20	20		

The following were each mentioned by one person only, and are placed under "miscellaneous" in the table: Pride, diffidence in Christian work, anger, thoughtless exaggeration, love for woman, sodomy, social dissipation, hatred of brother man, in the world out of Christ, insincerity, moral cowardice, lack of thoroughness, ambition to be a great man, breaking the Sabbath, exaggeration, neglect devotional duties, improper language, fun, desire for popularity, listing.

Almost everything mentioned by the students has been recorded, even though trivial, because it was thought interesting

and helpful to see what they looked upon as sin. The prominence of "laziness" is striking, and no doubt has some connection with the physical changes of this time of life. Teachers call many boys lazy, what is laziness? It probably refers to indisposition to study rather than to physical exercise. In view of the terrible strength and ravages of the sexual temptations, as recalled in these answers, one is led to wonder whether this indisposition to books is not a call to out-door exercise, and whether the failure to obey this demand of nature may not account in some measure for the distressing failure to control the sexual appetite.

There were 42 papers out of 232 in which there was no clear intimation that sexual temptations were experienced. Although the question was not directly asked, and in many other cases it was not clear, still there were 75 who were guilty of masturbation after their conversion, and 24 after they had decided to become ministers.

As much as one shrinks from it, one feels that it would be unfair to the few Christian workers who are now giving special attention to young men, and most of all to the thousands of youths who are now undergoing temptations which their elders do not appreciate, to fail to give at least a few of the almost heart-rending details which this question has brought out. The following are some of the replies:

1 (a) What was your severest temptation?

"Lying, masturbation, sexual intercourse."

(b) Did you yield?

"Masturbation, sexual intercourse and lying."

(c) To what extent?

"Masturbation—O, my God! it liked to have ruined me for life. I yielded to lying to some extent, and also to sexual intercourse a few times."

2 (a) Severest temptation?

"Masturbation."

(b) Yielded?

"Masturbation."

(c) Extent?

"Almost never, except by vile imaginings and terrible passion in the night-times. My belief is that there is no other avenue by which Satan so tempts and destroys boys."

3 (a) Severest temptation?

"Masturbation, laziness."

(b) Yielded?

"Masturbation."

(c) Extent?

"Extensively for a short time; stopped when I learned its vital evil. Oh! that fathers would show their boys the danger in this!"

4 (a) Severest temptation?

"Masturbation and sexual intercourse."

(b) Yielded?

"Both."

(c) Extent?

"The former almost daily; the latter very seldom."

5 (a) Severest temptation?

"To be backward in Christian work, masturbation."

(b) Yielded?

"Both."

(c) Extent?

"The first, I thought that others could do the work better than I. The second, at periods, I practiced nearly every night during my academic course."

6 (a) Severest temptation?

"Laziness, or rather procrastination, and masturbation."

(b) Yielded?

"Both; but masturbation was the stronger, yet the two were largely combined."

(c) Extent?

"Masturbation irregular. Periods of abstinence followed by excess. Conscience said it was wrong, but had no definite information why wrong. Began when about ten or eleven, then ceased with very occasional participation till sixteen. Then continuous till gained definite knowledge about three years later. That with prayer broke the chain of bondage, but now constant prayer and watchfulness is needful."

7 (a) Severest temptation?

"Dishonesty and masturbation."

(b) Yielded?

"Masturbation. Oh, that God would blot this out forever!"

(c) Extent?

"To the extent of sin. Not often, but too often. I would if possible, blot this out of my life, yet I had not been told anything whatever about it in warning. Learned it from jokes and inclination."

8 (a) Severest temptation?

"Laziness and masturbation."

(b) Yielded?

"Masturbation."

(c) Extent?

"Until it was wrecking my life."

9 (a) Severest temptation?

"Swearing and masturbation."

(b) Yielded?

"Both."

(c) Extent?

"Extended over a number of years, ranging from period of several days to several months, (that is, the yielding the latter; as to the former, never, unless I was very angry)."

10 (a) Severest temptation?

"Lying, masturbation."

(b) Yielded?

"Masturbation."

(c) Extent?

"That I was weakened in mental power and vigor. May I say that Sunday is the day when the devil does his best work along the line of masturbation. Fellows get together, tell stories which awaken these passions, and then the temptation is too strong."

11 (a) Severest temptation?

"Laziness, masturbation, sexual intercourse."

(b) Yielded?

"Masturbation and I was lazy sometimes."

(c) Extent?

"Sometimes I would masturbate as many as six times in two weeks."

The most was eight times in two weeks. Then I would go for a while without it."

12 (a) Severest temptation?

"Masturbation, lying."

(b) Yielded?

"Both."

(c) Extent?

"Came near ruining my health by the former."

13 (a) Severest temptation?

"Sexual intercourse."

(b) Yielded?

"None, if it were not dishonesty to some extent."

(c) Extent?

- "Deception of teacher and parent."

14 (a) Severest temptation?

"Masturbation and sexual intercourse."

(b) Yielded?

"Masturbation. Thank God, I had no very favorable opportunity for the others!"

(c) Extent?

"I was guilty of self-abuse as often as once a day regularly for about nine months."

15 (a) Severest temptation?

"Unbelief, masturbation."

(b) Yielded?

"Masturbation, through ignorance."

(c) Extent?

"For the same reason that I yielded, I cannot tell to what extent."

16 (a) Severest temptation?

"Swearing and masturbation, and sexual intercourse."

(b) Yielded?

"Swearing and masturbation."

(c) Extent?

"Swore frequently, and practiced masturbation from one to two times a week."

17 (a) Severest temptation?

"Masturbation."

(b) Yielded?

"Masturbation."

(c) Extent?

"Two years, until instinct taught me what my elders were to modest to tell."

18 (a) Severest temptation?

"Masturbation and sexual intercourse."

(b) Yielded?

"Masturbation."

(c) Extent?

"Practiced it to some extent for four years."

19 (a) Severest temptation?

"Masturbation."

(b) Yielded?

"The same. Formed the habit before being converted, and had a hard time in the fight."

(c) Extent?

"I formed it to such an extent that I would unconsciously do it in my sleep. I do n't mean nightly emission, but the act itself (was my worst enemy)."

20 (a) Severest temptation?

"Masturbation, sexual intercourse."

(b) Yielded?

"Masturbation."

(c) Extent?

"A very few times since conversion."

21 (a) Severest temptation?

"I cannot say *yes* to any of these."

22 (a) Severest temptation?

"Masturbation, sexual intercourse."

(b) Yielded?

"To the two underlined. I dare not now write them. I hate the very thought of them. May God forgive."

(c) Extent?

"The first frequently, the second once."

23 (a) Severest temptation?

"Laziness, masturbation, sexual intercourse."

(b) Yielded?

"Laziness and masturbation."

(c) Extent?

"To laziness, *so little* that I kept up well in my class-work. Masturbation has been my most terrible foe. At times, I thought I had it conquered, but it would conquer me again. I have never ceased to fight it, and now by God's grace, I think it is conquered."

24 (a) Severest temptation?

"Masturbation."

(b) "Same."

(c) Extent?

"Only when Satan swept me clear off my feet, possibly at intervals of six weeks."

25 (a) Severest temptation?

"Swearing and masturbation."

(b) Yielded?

"Both."

(c) Extent?

"Moderately for two or three years."

26 (a) Severest temptation?

"Masturbation, laziness, and lying."

(b) Yielded?

"All, to some extent."

(c) Extent?

"Masturbation was continued through my whole high school course, and about a year previous. Excessive indulgence."

27 (a) Severest temptation?

"Dishonesty and masturbation."

(b) Yielded?

"To these two more than any other."

(c) Extent?

"To the latter to an alarming extent, but my attention was called to the evils of masturbation by some patent medicine advertisement."

In reading these replies, one cannot fail to be impressed with:

(1) The alarming extent to which some students practice masturbation.

(2) The morbid state of mind thus occasioned.

(3) The uniformity with which they blame their elders for not having warned them.

(4) The strong hold with which the habit keeps them.

It is possibly true in certain cases that the evil physical results are overestimated by these young men, but when one is brought to *think* that his mind is gone, he is not far from in as bad fix as the man whose mind is gone.

Is not the state of affairs thus revealed serious enough to demand the earnest consideration of the three classes most directly interested and most directly responsible for these young men, viz.: their parents, their teachers, and the leaders of the Young Men's Christian Associations? It is not the purpose of this paper to indicate methods by which the needed work is to be accomplished. These facts show that there is a lamentable lack in the methods now pursued. Parents must not longer rest satisfied with having their sons taught the most delicate and one of the most sacred truths of life at the school, in the livery stable; preparatory and high school teachers have not done their duty to their students when they have given a few hours drill in Latin or Mathematics, when there is a subtle influence which is undermining the mental and moral nature of these same students of which the teachers are unmindful; and the College Young Men's Christian Association cannot satisfy itself with weekly meetings however enthusiastic and largely attended, and statistics of membership, however encouraging, so long as the Association fails to grapple more earnestly with the problem here presented.

To the question in regard to doubts there were 238 replies, 93 of whom had had periods of doubt, and 145 of whom had not. It should be borne in mind that the replies to this question cover the experiences of university, college, and preparatory school days.

The time of doubt is roughly as follows:

13-15 yrs.	8	23-25 yrs.	11
16-19 "	19	26-39 "	1
20-22 "	15		

I say "roughly" because periods were of different lengths, such as 17-20, 13-8, 14-15. The time was marked in some cases by such expressions as the following: "When I first studied evolution;" "junior and senior year in college;" "seasons of trial and application;" "times of despondency;" "when my life was not pure;" "after an emotional revival;" "before conversion;" "always had such seasons."

Some of the periods were characterized by occasional seasons of doubt lasting from momentary flashes to months, while in other cases, the whole period was one of doubt. The length of time the seasons lasted is revealed by answers to question (5) which are as follows:

Short intervals (some as short as five minutes) 33.

- Six months, 3.
- Short time, but continuous, 16.
- About one year, 10.
- About two years, 4.
- From three to five years, 6.
- Eight years, 1.

A great variety of causes for doubt were given. They may be classified as follows :

- Ignorance of or neglect to study the Bible, 10.
- Neglect of prayer, 8.
- Study of philosophy, psychology, botany, geology, comparative religions, 12.
- Inconsistent living of Christians, 10.
- Sin (on part of the doubter), 11.
- Supposing certain theological or denominational dogma integral parts of the gospel, with which it must stand or fall, 2.
- Mental growth or development, 11.
- Contact with unbelievers, 14.
- Seeing seeming contradictions in the Bible, or otherwise misunderstanding it, 9.
- Trying to understand things too deep for me, 2.
- Unanswered prayers, or other inexplicable personal experiences, 3.
- Lack of Christian work or responsibility, 4.
- Natural doubting nature or enquiring mind, 4.
- Influence destructive critics of Bible, 2.
- First contact with higher criticism, 1.
- Reading skeptical books, 4.
- Ignorance of evidence of Christianity, 3.
- Social inequalities of our time, 3.

Or dividing into more comprehensive classes :

- Natural growth of mind in contact with new subject and new conditions, 28.
- Neglect of Christian duties and positive sin, 36.
- Influence of skeptics or skeptical books, 20.
- Failure of professed Christians to manifest Christianity, 13.
- Misunderstanding Christianity and perplexing experiences, 14.

The helps for ending doubt which were given may be classified as follows :

- Bible study, 13.
- Prayer, 12.
- Christian work, 11.
- Association with and example of godly people, 13.
- Listening to sermons and lectures, 5.
- Reading works on Christian Evidences and other books, 8.
- Memory of own Christian experience, 4.
- Having difficulties explained, 4.
- Thinking things out, observation, 8.
- Study of science, 3.
- Getting right with God, 3.

A careful study of these replies convinces one that doubt is not one of the most serious problems among college students in America, and that higher criticism is not "slaying its thousands, and German rationalism its tens of thousands."

Some helpful suggestions come to one as to how best to deal with doubt from a study of the replies to the questions on the cause and cure of doubts:

1. The doubt arising from mental development is normal, and in every way healthful and helpful. It is but the readjustment of belief when one begins to think, and should result in stronger faith. The young man needs to be kept in association with Christian people whose life will prove to him the truth of Christianity. He should be urged to keep up his private devotions, guard the purity of his life, read good books, and allowed to doubt to his heart's content.

2. The proper treatment of the large class who disbelieve Christianity because they disobey its truth is not to give them further evidences of the truth of Christianity, but to call upon them to live the truth they know. This same treatment will also be the best for the inconsistent Christians who are a stumbling block to others. It is doubtful, in fact, whether it is often the best to deal with doubt in our American institutions directly.

3. It is unwise to let young men at this period of readjustment come under skeptical influence either through books, professors, or fellow-students, where this can be avoided.

4. Careful explanations of some of the more difficult Christian doctrines, the more prominent difficulties in the Bible, and a statement of the fundamentals of Christian truth, would save many from periods of doubt.

5. Above all let the necessity for prayer, personal Bible study, and right living be insisted upon.

CHILDREN'S INTEREST IN WORDS.

BY LILLIE A. WILLIAMS, State Normal School, Trenton, N. J.

In language, as we all know, sounds form symbols of thought; these are first known only through the ear, then they are spoken, still later they are associated with symbols which appeal to the eye, and words may be seen and read. The important thing to be noted is that every one acquires oral language first. When the little child of five or six learns to read he has already had four or five years of practice in calling up ideas by auditory and motor images. Not only so, but back of this lies the whole history of the race, extending down through those ages upon ages when there was no written language appealing to the eye, but when ear and speech were all. It thus comes about that the auditory word center and the motor speech center in the brain are far better organized and developed than the writing and reading center so that the first mentioned with their inter-connections must be regarded as primary and the others as secondary. Indeed it is doubtful whether all the eye experiences of later life ever alter this underlying function of the earlier language centers.

The keen pleasure, then, which accompanies the use of the powers of speech is originally a matter of hearing and of motor activity and in this, the feeling side, the eye never plays any but the most subordinate part, so that in studying this aspect of the function we may ignore the eye altogether, and I have accordingly done so in my investigation.

That the use of the language instinct is a source of delight to very young children is shown by Miss Shiinn in her "Biography of a Baby" and by Mrs. Moore in her study of her own child. She records a joy almost approaching ecstasy in his early articulatory performances. That this pleasure in words continues after language is learned I have myself noticed, especially in my study of my niece Helen. Whenever at six or seven she heard a word that attracted her attention she used to say it softly over to herself many times. It was the word itself that pleased her. Thus, after practicing the word "diarrhœa" I heard her say to one of her dolls: "Come here 'Diarrhœa' my dear;" and on another occasion she told me that her dolls had two gods—"Diphtheria" and "Diarrhœa." She took the most extraordinary pleasure in the mere act of articu-

lation. Sometimes she would pour forth a steady stream of words—for the most part utter nonsense—lasting for an hour or more. The charm which she felt in the names was for some time entirely due to her pleasure in the sound and in the act of speaking—Sheherezade, Badrul, Boudour and other names from the Arabian Nights were repeated over and over again. Often she has said to me, "Don't you wish your name was Marie Antoinette, or Adelaide or Sheherezade?" Or she would ask "Which do you like best Rowena or Revena?" or again "Gladys or Evelyn?" When I said that I thought Evelyn a little prettier she went on "I think so, too, because it sounds like Azrael playing upon the harp." Once, as an experiment, I, when asked for a story, recounted the names of the Kings of England and of their Queens. She listened with unabated interest throughout and when I had finished asked me to say them over again. What I noticed in her has been observed in many other children. "B. plays with words," writes a mother as quoted by Dr. Lukens, "using great variety of pitch and inflection."

Does this delight in sounds and articulations cease, when the child acquires the mastery of the instrument and becomes more or less absorbed in language as a useful tool—as the medium for thought? I believe that though it sinks into a less prominent position, it persists not only through the school period but if rightly exercised then, through life. "It is the chief element in our pleasure in poetry, oratory, the beautiful in language in general—or what we call style." To illustrate, Daniel Webster's last words were, "I still live," but the boy in the history class gave, as his version, "I aint dead yet." He has the essence of the thought of the great orator—but all the beauty of the utterance is gone—he has lost the cadence, the pleasing liquid sound of the l's. In short he has offended our feeling for the heard word. Robert Louis Stevenson, one of the greatest masters of style which the 19th century produced, says in one of his letters, "A man learns his art in the crystallization of day dreams: in changing, not in copying fact; in the pursuit of the ideal, not in the study of nature. These temples of art are, as you say, inaccessible to the realistic climber. It is not by looking at the sea that you get:

"The multitudinous seas incarnadine;" nor by looking at Mont Blanc that you find:

"And visited all night by troops of stars."

A kind of ardor of the blood is the mother of all this; and according as this ardor is swayed by knowledge and seconded by craft, the art expression flows clear and significance and charm, like a moon rising, are born above the barren juggle of mere symbols."

In modern pedagogy the doctrine of interest holds sway, so that if there is such a natural interest in words as I have claimed, teachers cannot remain ignorant nor indifferent regarding it. How do children manifest this interest? Do all have it in an equal degree? Can it be augmented by wise stimulation? are questions which they may well raise.

What follows is a little study in this interest. It grew out of an earlier attempt in this same line. One of my students in advanced Psychology became so much attracted by her little brother's pleasure in language that she asked if she might make it the subject of a research. I prepared a little questionnaire which we gave to the pupils in our Model School and the returns when tabulated according to age and sex proved suggestive and helpful. It occurred to me to work out the questions at greater length and to give them to the students in the Normal School as a reminiscent study. Miss Alden and I dictated them to the classes in Psychology, and through the kindness of Miss McGuire and Miss Luther, returns were obtained also from the students of the B. year. Young ladies so greatly preponderate in numbers in our school as to practically limit this study to the female sex. I have a few papers from young men but there are not enough to warrant me in tabulating them.

The first inquiry: "When you were a child was uttering words a pleasure to you? Is it now? Did you enjoy talking or reciting because you liked to hear the sound of your own words? Or why?"—was answered affirmatively by 180 girls, negatively by 53, while 24 said they could not remember. Thus responses were elicited from 233 out of the 257 to whom the inquiry came. So large a proportion seemed to me a justification of the attempt to get at the matter through reminiscence, while the reasons stated show certain things which we could not learn from the children themselves, and offset the great disadvantage that we seldom have the exact age when these things were true. May it not be possible, in the light thus obtained, to turn again to the children, and in time to settle the age at each phase definitely. Expressing results now in the form of percentages for future comparison—we have 22.74+ per cent. who did not like to utter and 77.25+ per cent. who did. Of those who answer affirmatively 33.9+ per cent. were unable to give any reason for their pleasure. 25 per cent. say that it was due to the act of articulation. 19.44+ % that it was due to the sound which ensued, while 7.7+ % say it was a combination of motor activity and sound which was the source of the pleasure. 3.9% report that they enjoyed uttering words when alone, but were so bashful that there was no pleasure in it when in the company of others.

5.5 + % state that while uttering words in childhood was a pleasure that it is so no longer now that they have entered adolescence, while 4.4 + % state that the change has been the other way.

The second inquiry "which did you like best to speak yourself or to listen to other people speak? Why?" was answered by 221 in all—153 preferred to listen, 61 to speak, 7 liked both equally well, while 15 were unable to answer. Expressed in per cents. we have:—69.23 + % prefer to hear; 27.6 + % prefer to speak, while 3.16 + % like both. Of those who like best to hear 20.8 + % state as the reason that they were bashful or timid—in short they refer to fear in some form. In pleasure in language, then, we find the sensory side predominating strongly over the motor, the situation being brought about partly by the ridicule which has been experienced in the early—halting—attempts at speech. This naturally leads to the third inquiry, "What sounds or what combinations of sound were difficult or impossible for you to pronounce? As this touched, in most cases, such an early period of life that the subject would probably be unable to recall it, the girls were requested to refer the matter to parents and teachers, and others who had them in charge when they were learning to talk, but even by this plan results were too meager to be expressed in per cents., but I have made a table of the sounds reported, noting in each case the number of persons who mention it. (See table p. 278.) Of course I keep always in mind the fact that the number of returns is far too small to base any generalization upon—still I thought that this table might have a suggestive value especially to the teachers of little children, putting them on the alert for the most common difficulties, thus it is plain that we must give special pains to the functioning of the tongue, which is seen to be the least tractable organ. I shall be greatly interested to learn whether the experience of those dealing with the beginners agrees with the results here indicated.

The fourth point raised—"As a child did you like to hear people use words unfamiliar to you? Did you like to use these same words afterwards yourself? Ill. Do you still do this?" was taken up in view of the fact that this is the chief way in which children enlarge their vocabularies and in the belief that those who genuinely delight in words or in saying them, would probably have an advantage here over those with a less strong interest. My little niece has given me repeated opportunity to study this language interest. One day when she was not yet seven she began reading aloud to me, but after a little she stopped and said "I can't read this, it gives me the apoplexy." Two months later she lost her paint-box; after

TABLE OF SOUNDS REPORTED.

		k and hard c	
r	24		16
br	1	ch	4
dr	1		
tr	4	g	13
rt	1	b	3
s	21	p	2
sb	1	ph	2
sh	3	ap	1
sk	1	wh	4
sp	1	w	2
st	1	j	2
		m	1
		n	1
th	21	nt	1
tch	1	a	1
tw	1	e	1
tx	1	ict	1
t	1	ion	1
		oi	1
		oo	1
		um	1
		ults	1
		(in middle of word.)	
lal	1	Ill. I.	y
f	13	fu	1.
v	8		
z	1		

looking in vain for it down stairs, she came up and I heard her say as she went storming through the room, "Oh, that curséd Harriet." Harriet was the colored servant with a genius for

clearing up and putting things away, which Helen did not appreciate.

237 young ladies answered the questions, while 14 were unable to do so. Of those who answered:—

17.7 + per cent. simply said "no."

9.7 per cent. said "no" but that they used the words afterward.

9.28 + per cent. said that while they disliked to hear unfamiliar words in *childhood*, they *now* like to hear them.

13.08 + per cent. simply said "yes."

5.06 + per cent. said that they liked to hear them but were afraid to use them.

40.08 + per cent. said that they liked to hear them and to use them in childhood and *still do*. While

5.06 + per cent. said that though they liked to hear and to use new words in childhood that they do so no longer.

The inquiry "When you were a child did it annoy you to hear words mispronounced? Does it annoy you now? Why?" was suggested by the fact that in certain cases the interest in words is so strong that positive discomfort is felt at hearing them pronounced in any way other than the familiar one. Helen repeatedly showed this when in reading the Arabian Nights to her—a name varied in the least from the pronunciation which she had heard from a previous reader.

260 young ladies answered the questions only one professing herself unable to report. Of those who replied,—

3.08—per cent. simply said "no."

26.15 + per cent. said that it did not annoy them in childhood, so far as they could remember but that it does now.

8.46 + per cent. simply said "yes."

61.54 + per cent. report that it annoyed them in childhood and still does.

77 per cent. (2 girls) said that while it annoyed them in childhood it does so no longer.

When it came to reasons, only 170, that is, less than one-half attempted to answer, and many of these replies were exceedingly vague. 51.76 + per cent. said that it grated upon the nerves or the ear—the two expressions being used synonymously: they are presumably ear-minded persons—while 20.59 per cent. give as their reason that they felt like correcting the speaker or uttering the word correctly internally, apparently these are the pupils in whom the motor is most interesting. 21.76 + per cent. disliked it because it seemed a sign of ignorance and so of inferiority in the speaker. 2.94 + per cent. felt that the word was injured—and the same proportion 2.94 +—disliked it because it distracted attention. Here we have the two extremes, on the one hand those to whom the word is a thing in itself

with a personality of its own—on the other those whose interest in words as such is wanting—the meaning has the field of consciousness.

The next question—As a child had you any favorite sounds? What were they? tends to bring out cases of genuine word interest as the individual sounds do not convey thought and hence we rule out meaning. But, as in the case of difficult sounds the answers were not full enough to admit of being expressed in per cents. 133 pupils say simply that they had no favorite sounds, 24 either cannot remember or don't know, 102 say that they had favorites while 2 say "not as a child" leaving us to infer that they have such now. The table here is interesting when we

TABLE OF FAVORITE SOUNDS.

<i>Vowels.</i>	<i>Consonants.</i>
ä—13	l—28
ā—8	r—22
ā—1	m—19
ar—1	n—7
ē—7	s—12
er—2	sh—3
ě—2	sl—1
i—2	hard c or K—6
ine—5	co in coy—1
ing—4	cl—1
ir—1	ch—2
ai—1	f—3
ō—2	v—3
or—1	t—4
ory—1	th—3
oi—4	tr—1
ou—1	tw—2
u—1	tro—1
eu—1	p—1
ub—1	pay—1
ur—1	g—2
ūn—1	gas—1
y—1	gh—1
ye—1	h—1
	w—1
	wh—3
	x—2
	z—4
	zh—1
	Liquids—7
	Mutes—1

compare it with that of most difficult sounds. Observe that *r* which figures as the most difficult of all the sounds, comes high in the list of favorites, being second only to *l* which was somewhat difficult. So, too, *s* is second in the list of the difficult but is also fourth favorite. So the comparison may be

continued. Mr. Bagley, of Cornell, in his experimental study of the apperception of the spoken sentence, found that when a sound in a heard word is not understood, the listener will substitute some sound to fill out the word and that in the substitutions thus made, the sounds of v, l, r, and of t and d were chosen much more frequently than other consonant sounds. Now the first three are among the hardest and the last two among the easiest to learn, so that we notice two reasons why a sound may be a favorite—because it is easy in itself like the vowels—or b—; or because it was hard to master and so is endeared as a trophy of conquest when the struggle is successfully over. Here is a most important reason why we should never allow a child to stop short of complete mastery of a difficult articulation.

The question "Had you any favorite words—not proper names?" elicited the answer "no" from 141 students, "yes" from 85, while 21 were unable to reply. 329 instances of favorite words were given. These I have not had time to tabulate with reference to the relative importance of the constituent sounds—but I give them arranged alphabetically leaving you to make the comparison with the table of favorites next it.

FAVORITE WORDS.

air,	buzz 2,	dancing,
alabaster,	bylow,	darling,
alienate,	cactus,	dashing,
although,	cadence,	dear,
always,	calf,	delightful,
archipelago,	calm 2,	dell 2,
artistic,	caravan,	dog,
ask,	carmine,	earl,
astronomical,	casualty,	ecstasy 2,
azure,	cat 2,	elegant,
baby 3,	catarrh,	ethics,
ball,	celestial,	fathomless,
balm,	chimpanzee,	fatigue,
banana 2,	christmas,	fine,
bang,	clock,	flower, 2,
beautiful 4,	coming,	fragrant,
bell 5,	commune,	frolic,
bird,	compass	funny 2,
blue,	cooing,	gale,
booger,	crazy,	generally,
boorioboo h gha	creature,	gentile,
bowl,	critic,	girl,
bubble,	cushacusha,	gleanings,
bunny,	dale,	glittering,

grandma 2,	murmur 8,	ringing,
grass 2,	murmuring,	ripple 4,
great,	muse,	rippling 3,
grin,	musical,	rise,
half 2	naphtha,	river,
hark,	napkin,	roll,
harmonize,	never,	rolling,
hepatica,	onomatopoetic,	round,
heliotrope,	orphaus,	significant,
icicle,	pantomime,	silence,
idea,	papa,	sing 5,
impossible,	particular,	slate,
inanimate,	past,	solemn,
incarnation,	path 2,	solitary,
joyous 2,	pathetic,	sparkling,
lady,	patter,	splashing,
Sadie Moon,	pearl,	strictly,
laugh,	plum,	success,
lispig,	pony,	superior,
lock,	press,	superlative,
lovely,	pressure,	sweet,
low,	pretty,	time,
loyalty,	prophetic,	tintinnabulation,
lullaby 4,	psalm,	to-morrow,
lulled,	purity,	transubstantiate,
lustre,	quantity,	trespass,
mamma 4,	rat,	Tuesday,
meddling,	really,	unanimous,
melancholy,	realm,	vale,
mercy,	recollect,	weird,
merrily,	remember,	whistle,
metaphor,	resolve,	whizzed,
meter,	rhinoceros,	world,
mighty,	ridiculous,	zenith,
mill,	rill,	
morning,	ring 3,	

The list should be of value to those who write poems and tales for children and should also aid those who make selections from the writings of others for use in school.

As to proper names—I have already illustrated my niece's fondness for them—When used as a name a word attains its nearest approach to being a thing in itself and so a child's fondness for them constitutes an important part of his word interest. The questions "What proper names did you like best? Did names seem important things to you then?" opened up this field. 221 young ladies said that as children they had

favorite proper names, 25 said that they did not have favorite names, while 15 could not answer. Thus out of the whole number—246—who could answer—89.83 + per cent. had, while only 10.16 + per cent. had not. Here is the list arranged alphabetically under three heads—Geographical names—names of males—names of females.

GEOGRAPHICAL NAMES.

Annapolis,	Hohenlinden,	Rio-de-la-Plata,
Bethlehem,	Illinois,	Rio Janeiro,
Boston,	Klondike,	Riverton,
California,	Maryland,	Rome,
Chicago,	Massachusetts,	Santiago,
Cincinnati,	Mississippi 4,	Schenectady,
Constantinople,	Newark,	Trenton,
Delanco,	New Orleans,	United States,
England,	New York,	
Galveston,	Ohio,	Geog. Names—8.
Halifax,	Philadelphia,	Indian Names—2.
Haverhill,	Popocatapetl,	

NAMES OF MALES.

Abou ben Adhem,	Eugene 2,	Leon,
Albert,	Francis 2,	Le Roy,
Antonio Richetto,	Frank,	Louis,
Canning,	Franklin,	Lucien,
Carlton 3,	Fred 2,	Malcolm,
Carlito,	Frederick,	Maurice,
Charles 3,	Gabriel,	Maxwell,
Charleston,	Garret Earl,	Moses,
Chris,	Geoffrey,	Napoleon,
Christ 2,	George 2,	Paul,
Clarence,	Gerald,	Percy,
Claude,	Godfry,	Ralph 3,
Clifford,	Greenleaf,	Raymond 2,
Clinton,	Guyld,	Redmond,
Crosby,	Harold 8,	Reginald,
De Forest,	Harry 5,	Reynold,
De Witt,	Hiawatha,	Richard,
Douglass,	Horace,	Robert 2,
Dr. Melcher,	Howard,	Rockafellow,
Earl 3,	Jack 3,	Roderick,
Edgar,	Jasper 2,	Roger,
Edmund,	Joyce,	Roland 4,
Edwin,	Kenneth,	Ronald,
Elmer,	Lawrence,	Roy 4,
Epaminondas,	Leo,	Rulon,

Russell,
St. Clair,
Samuel,
Teller,
Themistocles,

Theodore,
Thomas.
Vanderbilt,
Vincent,
Wallace 2,

Walter,
Washington 5,
Will,
William,
Willie.

NAMES OF FEMALES.

Abbie
Ada,
Adelaide,
Agnes,
Alberta,
Alice 17,
Aline,
Alma,
Alta,
Amy,
Anita,
Anna,
Annette,
Arabella,
Araminta,
Arlouine,
Arnetta,
Beatrice 18,
Bell 4,
Bertha,
Beta,
Bessie 25,
Beth 3,
Blanch 6,
Blossom,
Boyd,
Bulah 4,
Carolyn 2,
Carrie,
Catherine 3,
Celeste,
Charita,
Christine 2,
Cinderella,
Clara 2,
Clarice,
Claudia 2,
Clementine,
Constance 4,
Dagmar,

Daisy 11,
Dollie Dinksie,
Dorice,
Dorothy 17,
Edith,
Edna,
Elaine,
Eleanor 4,
Electra,
Elizabeth 4,
Ella,
Ellen,
Eloise,
Elsie 18,
Emily 2,
Emma,
Erma,
Ernestine 2,
Estelle 2,
Esther,
Ethel 15,
Eva 4,
Evangeline 2,
Eveline 5,
Faith,
Fannie 2,
Fedila,
Florence 9,
Flossie,
Flora 2,
Frances,
Genivieve 3,
Geraldine 2,
Gertrude 7,
Gladys 8,
Grace 11,
Gretchen,
Guinivere,
Gwendolyn,
Harriet,

Hattie,
Hazel,
Helen 36,
Helena,
Hilda,
Henrietta,
Hope,
Hortense,
Hulda,
Irene 2,
Irma 2,
Jane,
Jessie 2,
Jo,
Josephine,
Justine,
Laura 4,
Lauretta,
Lavinia,
Lelia,
Lenore 3,
Leona,
Lettuce,
Lillian 14,
Lilly 20,
Lizzie,
Lola,
Louise,
Lucile,
Lucy 3,
Lulu 4,
Mabel 13,
Madeline 2,
Madge,
Margaret 11,
Marguerite 13,
Marianne,
Marie 3,
Marion 4,
Mary 6,

Matilda 2,	Olive 2,	Rose 13,
Maud 7,	Olivette,	Rosy,
May 12,	Opal,	Ruth, 9,
Mercy,	Ora,	Sarah,
Merle 2,	Pansy 5,	Stella,
Mertie,	Pauline 4,	Sue,
Minnehaha,	Pearl 13,	Susie 3,
Minnie,	Phyllis,	Thelma,
Mildred,	Primrose,	Vera,
Miriam,	Rachael,	Victoria,
Millie,	Ray,	Viola 5,
Milly,	Rebecca,	Violet 20,
Myrtle 14,	Rita,	Virginia 4,
Nellie 7,	Rebecca,	Vivian 4,
Nora,	Romola,	Winnifred.

It is plain that to little girls, names belonging to their own sex are much more interesting than those of the other sex, whatever may come to be true later. It will be observed that among boys' names, those beginning with R are most popular, there being 24 of these, while Harold is the best liked single name, appearing 8 times. Notice how R and L rule here. As to girls' names, note that Helen 36 and Bessie 25 lead all the rest, though if we put Lilly 20, Lillian 14, 34 together we have another prime favorite. The names of flowers play a large part: Blossom 1, Daisy 11, Hazel 11, Lilly 20, Marguerite 13, Myrtle 4, Olin 11, Pansy 5, Primrose, Rose 13, Violet 20, showing how even with names—association enters strongly into the interest. One girl states that she believed that if one were called by the name of a flower, as Violet, she would certainly possess the qualities of the flower—these being carried by the name. As to the importance of proper names—215 answer, 22 cannot. Of those who answer, 75.35% state that these interested them, seemed important to them. 24.65% that they were not. Of those who deemed them important 7.44% state that they are so no more while 1.4 + % have changed the other way. As we have noted in regard to flowers, this strong interest in names is not a pure word interest. From the answers we have glimpses of the child passing through a state through which the race has passed, a state in which the name is a thing of importance in itself not to be lightly spoken. We have reference to this in the records of the nations of antiquity—"That thou mayest fear this glorious and fearful name." (Deut. 28: 58.) Traces of it are found in that practice of magicians of the Middle Ages of conjuring by occult words as "abracadabra" and "chrononhotonthologos." In our papers one student says:

"I thought the name helped to make the person ;" Another writes :

"I associated certain qualities with certain names." Another would not have a baby brother named Clarence lest the name should make him as disagreeable as certain boys of that name whom she knew.

In other cases the interest seems to have been in the word itself. Some of the answers may serve to illustrate how greatly children differ in regard to this feeling. One writes that she had a special liking for the names of distinguished men, another that she used to like or dislike girls because of their names. Still another writes :—"Yes, I had a great interest in names ; one of my favorite pastimes when a child was to take girls whom I knew and try to write a story about them. I began one with a friend but never got beyond the cast because I changed the names so much that I lost interest in the story. I am still very fond of names and love to find those that are new to me." (age 17.) On the other hand one writes "No : I had no interest in names. I skipped them in stories," or a girl says "No : I had a number of dolls that were never named," and another, "No : I did n't call dolls by name." Still another writes :—"I don't remember except that I disliked people for their names."

One enthusiast says : "Names have always seemed to me to be very important things. From a child I have always asked the names of unknown objects and of strangers. When small I thought it very important that cows should have proper names. I remember once asking a child of about my own size the names of her father's cows. She said that they did not have any particular names. This seemed to me a very serious state of affairs."

A young lady writes : "When about nine years of age proper names were quite interesting to me. I remember sitting down with my slate and writing all the proper names I could think of and then getting my spelling-book and looking up all the proper names it contained. My dolls never kept one name for a very long time. I was always sure to find another which I thought prettier than the one in use and so changed at once for the new one."

The next query : "Was there any piece in your school-reader or other books which you liked to read solely because it contained some attractive word or words? What was the piece? what were the words?"—was suggested by a bit of my own experience. As a child of six or seven I had a tremendous liking for a piece of verse in my 2nd Reader because it contained the word "supremest." I remember turning to its page and reading it again and again solely for the pleasure of articu-

lating this word. I did not know its meaning and I have no recollection of the subject of the poem. Another named "Helen Knitting" had a certain interest from the story but more because the word "zigzag" occurred twice in it. I liked greatly to say this. I was not specially quick at learning to read and this word interest proved a valuable incentive to the necessary practice which must precede the use of reading as a means to further knowledge. In answer to my inquiry 170 students could make some response while 80 were unable to do so. Of those who remembered: 48 say no, 9 say yes but can name no piece, and 113 say "yes" and give the words. Expressed in per cents.—

71.76 + had such favorites.

28.24 had not.

While I have the names, I have not had the time to tabulate all properly; let me rather give some results. 105 pieces are named. Those which appear more than once are:

Hiawatha 8,	Night before Christmas 2,
Wreck of the Hesperus 5,	The Tempest 2,
Excelsior 4,	Miller of Dee 2,
Paul Revere's Ride 4,	Procrastination 2,
The Brook 4,	Last Leaf 2,
Twinkle, Twinkle Little Star 4,	Cataract at Lodor 2,
The Bells 4,	The Raven 2,
Apostrophe to the Ocean 3,	Village Blacksmith 2,
Barefoot Boy 2.	

It will be noticed that Longfellow is by all odds the most popular poet. Is this because of his word power or rather due to the fact that his poems are more used than any others in our American schoolrooms? A scrutiny of the favorite words show that 30 students like the poem because of the proper names. This is the great charm of "Hiawatha." Of other words 21 are those in which liquid sounds predominate, 12 are unusual or imitative words, 9 are words ending in "ing," 7 are repeated words—as in "The Bells," 5 are specially long words as "procrastination," 8 are names of animals, 3 of plants, 5 are rhyming words as

Forever, never,
Never, forever,

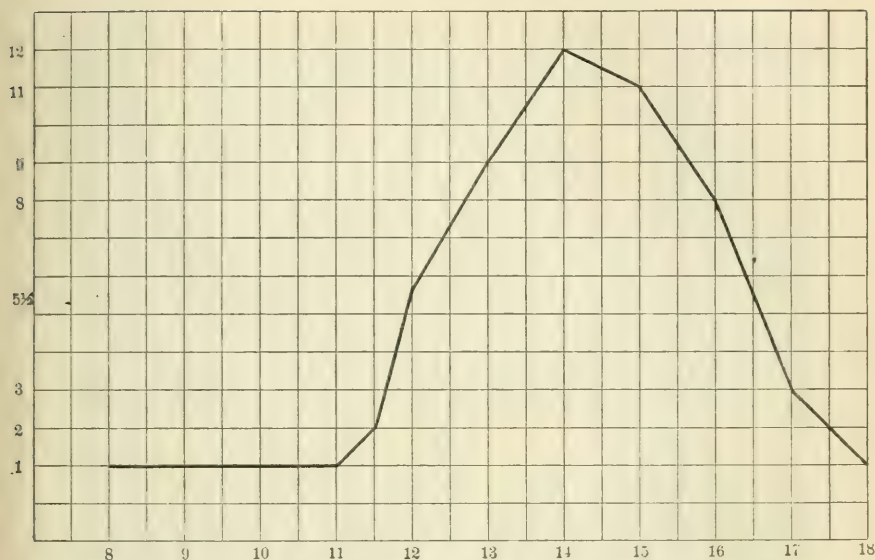
and in a few cases the words are exceptionally short. I hope that such a body of fact is not without value to those who select pieces for children to read or to speak.

Conversation with a student rather remarkable for her command of language elicited the fact that as a child she derived a high degree of pleasure from reading to herself the words in

the dictionary and that this pleasure was greatly enhanced after she learned the use of the diacritical marks and so could produce the sounds which the marks denoted. She believed that this practice materially aided her in gaining her mastery of words and her experience led me to put the next question: "When you were a child were you fond of reading the words in the dictionary, etymology or spelling-book—pronouncing them by the aid of the diacritical marks or by your own unaided power? and do you like this now?" 250 answered this question, while 11 were unable to do so. Of those who answered 150 or 60% say "yes" and 100 or 40% say "no." Of those who answer "yes"—16.8% add nothing more, 21.2% add by my own unaided power. Only 12% pronounced by the aid of the diacritical marks. Several students state that they knew nothing about the marks. 6% say that they liked this practice in childhood but do so no longer, while 4% did not like it in childhood but do now. The results of this inquiry point toward the value of teaching the diacritical marks to children as early as possible, and also to the value of the constant use of them.

The next question—"As a child, did you like to commit words to memory? Was this easy? Do you like it now?" touches upon ground already pretty well explored. 254 young ladies were able to answer, 9 were not. Of those who answer, 167 or 65¾% say "yes" while 87 or 34¼% say "no." Of those who reply in the affirmative 14.96—% simply say "yes." 32.67—% say that it was easy; 6.69% say that while it was easy in childhood it is not so now; 6.3% say that they still like to memorize words; and 4.72—% limit their liking to poetry. The large per cent. who say that they liked this exercise in childhood and the fact that while 6.69—% say that they no longer like it, none at all report the change, as the other way, mark out this phase of interest to be distinctly that of childhood and carries some interesting pedagogical implications.

The last inquiry: "As a child did you find slang attractive and did you use it? Were you criticised for it?" was asked at the suggestion of one of our teachers of English. In answer 226 give some form of an affirmative, 23 say "no" and but 2 fail to respond. The chief interest arises when we note the additional information advanced in many cases. 35 simply say "yes." 61 say "yes" and give their age when it was most attractive—which is expressed on this chart in the form of a curve. 104 say *not much as a child* leaving the adolescent interest unmentioned. 6 say "some." 19 say "I did not use it as a child but I do now." While only 1 says specifically "I did use it as a child but do not now." Of the 23 who



say "no" some are probably limiting their answers to childhood alone. I know this to be true in one case at least. Thus the most interesting fact that arises out of all this is that with girls the period of greatest pleasure in slang is in early adolescence not in childhood. As to criticism only 104 answer: of these 93 say that they were criticised. 11 that they were not. If these proportions may be taken as typical the interest must be genuine and strong for the practice to persist in the face of such opposition.

The second part of the study was directed toward ascertaining adolescent interest in words as such, and was limited to securing a judgment of ten words given as a test. The student was requested to pronounce each word aloud and to determine:—if she liked it—why—that is to hear it—to speak it, for both of these, or for some other reason. The words given were murmur, lullaby, zigzag, supreme, immemorial, incarnadine, burbled, lillibulero, shigshack, annannamannannaharoumlemay. It will be observed that the first six are more or less familiar words while the last four are strange. 245 answered as to "murmur," 5 were unable to decide. Of those who answered 96.34—% liked it; 3.66—% did not like it. Of those who liked it 57.2—% liked it because of the sound. 13.56% for the pleasure of saying it and 10.6% liked both equally well. As to "lullaby" 242 answered, 8 did not, 96.28—% liked it, 3.71—% did not, making it fall short of

murmur in popularity by a very small fraction. Of those who liked the word 52.36—% like it because of the sound, 15.87—% like best to say it, and 11.58—% like both equally. Thus lullaby seems to slip off the tongue rather more pleasantly than "murmur." "Zigzag" has a very different fate from its predecessors. In the first place 40 fail to answer, leaving 218 responses. Of these 43.57% like it. 56.43% dislike it. Of those who like it 41—% like the sound of it 26—% like to say it and 7—% like both. One student gives as a reason for liking it that it is onomatopoeic. This word contains in each syllable the sound of "z" calling for a strong muscular action of the tongue and the g demanding an equally strong effort of tongue and palate together. It is a strain on articulation and the pleasure derived is that of conquest and sense of power as is apparent in the much larger per cent. who enjoy saying it.

The judgment as to "Supreme" is made by 238 young ladies, 23 failing to reply. 198 like it, 40 dislike it. Of the first class 52.5—% like it for the sound, 15.15—% for the pleasure of articulation, 9.1% for both. 9 students like it because it is onomatopoeic. In Supreme we have two strains on articulation, the long u following the s, and the combination pr but the sound of the last syllable is so pleasing as to offset largely the joy of conquest so manifest as to "zigzag."

234 answer the question about "immemorial" while 18 cannot do so. Of those who answer 187 or 79.9+ % like it. 47 or 21% dislike it. Of those who like it 57.23% like it for its sound. 14+ % like to say it, 7+ % like it for both reasons equally. 2 students say it is onomatopoeic, 2 that it has rhythm, 1 likes its looks, 1 likes it because it is long. As to "Incarnadine" 212 answer, 41 fail to do so. 60+ % of those who answer like it, 40 dislike it, thus it is a much more unpopular word than its predecessors. Is this due to the "r" in the middle? Of those who like it; 49% like the sound, 16% like to say it. 8% like it for both. One says it is onomatopoeic, one that it is new, one likes it because it is long, and two for the rhythm.

We now come to the words with few or no associations and here we may suppose that genuine word interest will manifest itself with few complications. The judgment as to "burbled," taken from Servis Carrol's nonsense poem "Jabberwocky," is made by 229 students, 29 failing to answer. Of those who answer 70% like it, 30—% dislike it. Of those who like it 60% like it for sound, 15% to say it and 5% for both reasons. These figures are particularly interesting when compared with the returns for "murmur" since the articulatory efforts in saying the two words are much alike.

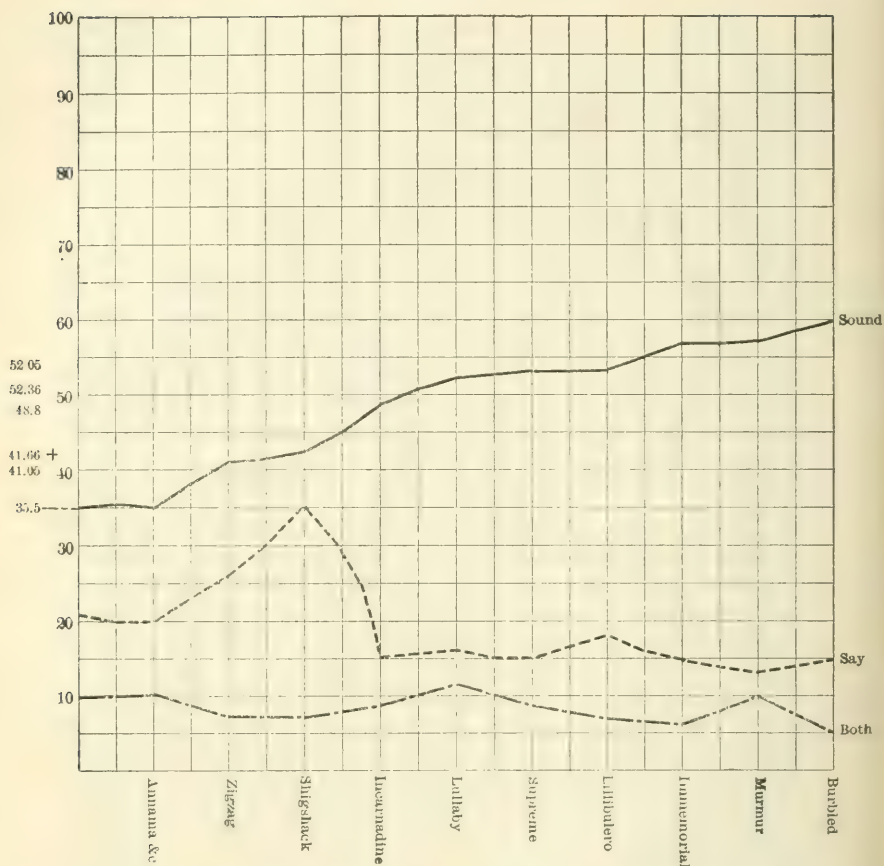
"Lillibulero" is the nonsense word which formed the refrain to a very popular political song at the close of the reign of James II, and I think was either entirely unknown, or seemed so when taken out of its connection, to the most of the young ladies. 231 answer regarding it. 32 fail. 76—% of those who answer like it. 24—% dislike it. Of those who like it 53—% like the sound, 18—% to say it, 7— for both. 5 students say they like the rhythm, 2 like it because it is new, and one for the alliteration. Compare these results with those for "lullaby."

"Shigshack" is a creation of my own and so could not have any associations. 214 make the judgment about it. 46 fail. Of those who judge 28% like it, 72% dislike it, thus making it the most unpopular word in the list. Like "zigzag," shigshack makes a great demand on articulatory effort and accordingly the joy of conquest appears in the results, for while of those who like it 42—% like it for sound, 35% like to say it and 7—% like it for both.

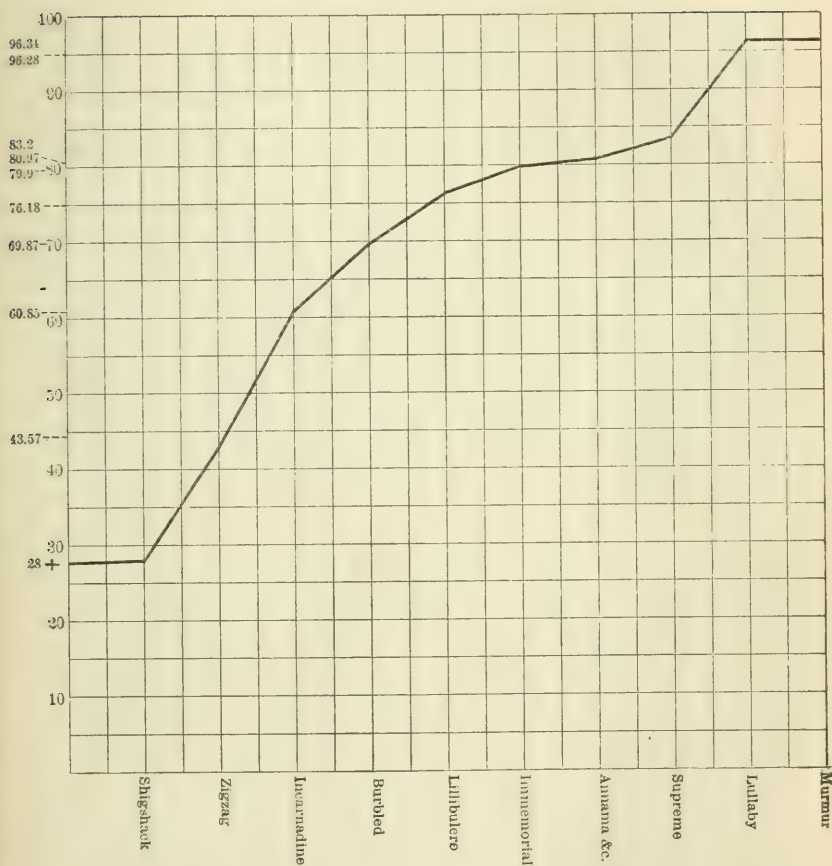
"Annannamannannaharoumlemay" is another of my little inventions. It contains nothing hard to say but it is long. 226 answer it. 23 cannot. Of those who do, 81—% like, 19—% do not. As to reasons for liking it 36—% like to hear it, 21—% like to say it, 10—% like both. 14—% like it for rhythm. All this is seen better when taken collectively so I have expressed my results in the form of curves on these charts. (See pp. 292, 293.)

Now looking over this mass of material as a whole, what is the significance of it? I am not so absurd as to claim any great achievement. It is open to you all to question whether the subject of the inquiry was important enough to warrant a study at all. Granting the thing to be worth while, I keep steadily in mind the fact that the number of returns is absurdly small, and that at least one thousand cases are required in order to secure valuable results, so that it would be folly to claim authority for my inferences. I bear in mind also that the vagueness in regard to age is another factor which reduces the value of the conclusions when one wishes to make any practical application. Still, when all deductions are made, I feel warranted in hinting at certain ideas suggested by a careful weighing and comparison of the results obtained from the answers to the several questions.

As is not uncommon in such investigations, the most important of these ideas, is not one which the questions were designed to investigate:— namely, that there are *two* great periods of language interest. We are prone to think, if we think at all about it, that the first few years of a child's life when the instincts rule, when speech is being learned, when words have the charm of novelty, is the only time when cor-



rect language habits are formed ; there is such a primary period of language interest of course but it is not the only period,—there is a second rise in the tide during the first years of adolescence, constituting a second day of grace for those, who, perhaps through no fault of their own, have failed to properly improve the first. Each of these periods has its own special characteristics. We see dimly from our returns that during the first there is a greater pleasure in the motor side of speech ; a much greater tendency to think of the word as a thing in itself, as shown in the interest in proper names, in having favorite sounds and words, in liking pieces for certain words and in the slightly greater interest in reading disconnected words ; and, as has always been known, great facility in memorizing words and pleasure in the performance.



The adolescent period on the other hand is marked by somewhat of a decline in the motor activity, and the interest in words as things in themselves, with a falling off in verbal memory; but there is at the same time a rise in interest in new words and in pronunciation; above all there is a tremendous rise in interest in words as instruments of thought. The adolescent mind is thronged by new experiences, new emotions flood it, new and larger views of life begin to arise but for the expression of all this he finds his old vocabulary entirely inadequate. The acquisition of words has lagged behind the tide of experience and so we have the dumb bound feeling of which most adolescents at one time or another complain, and also I suspect from this study in the case of girls, we have an explanation of the rise of interest in slang. It seems to be

exhilarating in a moment of verbal deficiency to make an old expression do duty for the new idea, not to speak of the other pleasures which attend the experience. But while the use of slang in early adolescence seems to be in girls entirely natural and interesting, it is a thousand pities to allow a young person to settle down into the slang habit. It must be part of the art of the teacher to know when to allow nature to have its fling and when to draw the curb and bring the vocabulary under rule. To reverse the process is to sin against the nature of the student. In considering these language periods, we are brought to the question are we taking them into account in our pedagogy. Do we change our methods as age advances? The sort of language teaching which is interesting to the small child is deadly boredom to the adolescent and *vice versa*. This early period of intense pleasure in names and new words do we utilize this? Then do we worry the child over faults in pronunciation which he himself will be interested in correcting in adolescence? Such questions as these might be multiplied.

The second idea suggested by our study is the tremendous importance of *hearing* in the affective side of language. The ear is the first avenue through which language is known and the sensations from this organ retain their primacy with most of us through life—but it is especially marked in childhood. Do we always keep this in mind in our pedagogy? We are brought to the necessity of frequent tests for deafness—unceasing efforts to improve defective hearing, and a minute knowledge regarding the individual hearing of each student. Says Dr. Hall in his recent paper on "The Ideal School:" "The child should live in a school of sonorous speech. He should hear and talk for hours each day. We must have less reading, less writing." And we may add that reading should be oral, spelling oral, we need speaking pieces, memory gems, etc.

Then, why is there so much less pleasure in the motor activity than in hearing? Our results lead to the question: "Is it because motor speech activity is so often defective? We see in some of our replies, the pleasure of victory over motor difficulty. I believe that we must be far more exact in our analysis of the speech defects of children as well as more discriminating in our methods of reaching these defects. This is not a matter of small moment if we reflect that failure to speak a word distinctly is usually also failure to think it clearly.

Lastly let me point out the danger of laughing at the word mistakes of children. All the little girls are not equally sensitive but our study shows what a paralyzing effect the fear of ridicule too often exerts. The great means by which the

beginner increases his vocabulary is the imitation of others. In this he must make mistakes, the sound is imperfectly heard or having few associations he mistakes the connection. Every means should be employed to stimulate the activity. Mistakes may pass uncorrected for a time or so much tact used in dealing with them that the tendency is unimpaired.

I have kept you far too long, but the field is so large that even a hasty glimpse requires time. I thank you heartily for the patience with which you have listened to what was doubtless to many of you extremely tedious. The interest which I feel in the subject is my only excuse. As a teacher of Psychology I require at least one important essay from each student during the year. I study the language of these solely as an instrument to express thought. In seeking to understand the far too frequent failures here, I am always led to this question of style and a further quest after the reasons for defects in style has led me to make this excursion up among the little springs where style is born.

THE GENETIC VERSUS THE LOGICAL ORDER IN DRAWING.

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It is now some twenty years since President G. Stanley Hall published his study upon "The contents of Children's Minds on Entering School." This publication is regarded as the first step in America of what is known as the child-study movement. During these fifteen years an immense amount of energy has been put forth and the results estimated in number of students, organized and unorganized, in the enthusiasm of interest, and even in the quantity of observations recorded, good, bad and indifferent, are something enormous. It has become a study which has appealed to a body of students of wide range of educational foundations, purposes and methods. Parents have undertaken it in the hope that through it they might be more truly parents. Teachers have undertaken it in the hope that it would help them to clearer pedagogic light. Normal schools have made it a significant part of their curricula for the purpose of interesting forth-coming teachers and children. Scarcely a university of any prominence is without a department engaged in child investigation. And in the department of philosophy, child study has pushed itself forward to be one of the main grounds of complaint in the divorce proceedings now pending between psychology and metaphysics. Methods of investigation necessarily have been as various as the purposes and life creeds of the heterogeneous classes of investigators. Necessarily there has been and is much mutual poo-hooing by the self-eyed of these divergent classes; still the work on all lines has gone merrily forward.

It has been evident from the first, that the point of view of child study was likely to prove interesting in the pedagogical field. For the movement started from a standpoint diametrically antipodal to that which has been the established basis of school practice. It has started from the standpoint of the child at his beginning, even in his remote ancestors, and has worked forward on a basis of internal development. Present school systems start from the adult, and work backward on a basis of adult thinking. It has been the interesting speculation from the first whether or not, as in the case of two gangs of workmen

starting to dig a tunnel from opposite sides of a mountain, they would meet in the middle. There is, to begin with, then, two opposite view points for regarding the education of the child; one, that his thinking power develops in the same logical order in which adults do their thinking; the other, that he develops his thinking in a different order,—an order which we may call “genetic.” It may be, it is true, that if we analyze the knowledge and training of adults according to the logical order, and then follow the child genetically and watch how he acquires knowledge, we shall find that he follows the logical order, that the genetic order is identical with the logical order as all past systems of education, without investigation, have assumed. But on the other hand, careful investigation may show that the child’s method of acquiring knowledge depends upon factors essentially different from those by which the adult thinks; the child may lack certain essential factors which the adult possesses; the logical order may be different from the genetic order and we may be attempting to teach him by an order which is not possible.

The defenders of the logical order can hardly be said to dispute the genetic standpoint. They are rather in the attitude of never having supposed it possible that there could be a genetic order different from the logical. The view of education as expressed by our present courses of study is something as follows:

The starting point of the logical method is what the adult knows in any given subject. This mass of knowledge is collected, sifted of non-essentials, and each part is tapered logically at the end so that it proceeds from what is simple in a logical sense to what is more complex. These tapered courses are then given to children in grades. Applied for example, to the course in drawing, the school has looked over the functions of drawing to adult life and has found that it is used (1) in industrial occupations, (2) in artistic representation and (3) in cultivating a “faculty” of observation. The first step in simplification is to abstract the geometric forms from objects in their practical relations. By this separation of form from practical objects, it is supposed that the work is made easier for children since the material is supposed to distract their attention. The next step is to segregate these geometric forms into an order of *mathematical simplicity*, and it is found that lines naturally are the logical simples out of which grow, by clear logical process, angles, squares, cubes, curves, circles, spheres, etc. All of this material is finally grouped in parallel columns so that if a cross section should be taken at any given level, so much preparation for industrial occupation, so much for art, so much for an observing “faculty,” would be found mixed in proportion, approx-

imating that which each of these diversities occupy in adult life. The child consequently begins these forms which are the simplest in a logical sense and proceeds gradually, step by step, through the geometric type forms and finally is supposed to reach the point where form is abstracted from nature. At this point, unfortunately, school education generally leaves him. He is supposed to cross over to nature by himself. He has learned to draw the perfect geometrical form out of which natural forms are constructed. This view of course holds that the business of the child is first to learn the "how," and then the "what" afterward. In other words, it argues for technique before execution, mechanism of formal expression before the idea expression, discipline before doing, grammar before language. It is a principle clearly of wide recognition in all forms of school education and has the advantage of being more or less regarded as axiomatic. To attack the principle of the logical order in drawing, is to attack the main column upon which rests the burden of our present educational structure.

This is a review of an issue which has probably come most distinctly to the front and in a field of instruction in which already there has been several skirmishes—instruction in drawing. Unanimity of existing systems upon essential issues is met by practical unanimity of students of those issues among the child study investigated. Moreover, the subject is an interesting one for the reason that in the matter of children's drawings studies have been made by some of the most prominent leaders of the present child-study movement as the following list of sixteen studies, upon which this review is based, will show.

I. MASS STUDIES.

1. A study of several hundred children's early drawings, in "Contents of Children's Minds on Entering School;" by President G. Stanley Hall, of Clark University, first published in 1882 and republished in *Pedagogical Seminary*, 1892, Vol. I, p. 165.
2. A study of 15,218 drawings of 6,313 children, ranging in age from six to sixteen years, by Professor Earl Barnes, of Stanford University; *Pedagogical Seminary*, Vol. II, p. 455, 1892.
3. A study of 1,232 drawings by children under 10 years, by Dr. H. T. Lukens; *Pedagogical Seminary*, Vol. IV, p. 79, 1896.
4. Art of Little Children, a study of 1,250 drawings by young children of the Italian school, by Corrado Ricci; translated from the Italian by Louise Maitland; *Pedagogical Seminary*, Vol. III, p. 202, 1893.
5. A Study of Drawings of Children in the Schools of Wi-

nona, Minn., by children from five to seventeen years, by M. V. O'Shea; Proceedings of the National Educational Association, 1894, p. 1015.

6. What Children Draw to Please Themselves, by Mrs. Louise Maitland, from 1,570 drawings of California children, ranging from five to seventeen years; Inland Educator, Sept., 1895.

7. Chapters of "Child as an Artist" and "The Young Draughtsman" in Studies of Childhood, by James Sully; New York, 1896, p. 208.

8. Note sur les Dessins d'Enfants, by Jacques Passy, upon the drawings of Young Children, principally in rural French schools; Revue Philosophique, Dec., 1891, p. 614.

9. Art Teaching and Child Nature, by E. Cooke; in London Journal of Education, December, 1885, and January, 1868.

10. A Study of Motor Ability, by Supt. J. A. Hancock; *Pedagogical Seminary*, Vol. III, p. 8.

11. The Child's Attitude toward Perspective Drawing, by A. B. Clark, of Stanford University, in Studies of Education, Number 8, 1897.

II. STUDIES OF INDIVIDUAL CHILDREN AND DRAWINGS.

12. Notes upon the Development of the Child, by Millicent Washburn Shinn, University of California Studies, Vol. I, Nos. 1 and 2, 1893-4.

13. Chapters upon "Infant's Movements" and "Origin of Hand-writing" in Mental Development, by Professor J. Mark Baldwin, of Princeton, New York, 1895.

14. "Pictorial Evolution of Man," a series of drawings by children, with comments by Prof. Earle Barnes, in Studies and in Education, Nos. 1 to 10, 1896-7.

15. References in "Development of the Intellect," and "Senses and Will," by W. Preyer, translated by H. W. Brown.

16. Studies of Children's Drawings, University of California Studies, Vol. II, Edited by Prof. Elmer E. Brown and comprising studies by Millicent Washburn Shinn and others, upon individual children up to five and six years of age, 1897.

17. Systems of Drawings published by leading text publishers of the United States and Courses of Study in Public Schools.

It should be understood that this review will attempt to deal with the problem only up to the tenth year or thereabouts, or in other words, with drawing in the kindergarten and primary grades; nothing is predicated upon the problem after that age. It is also distinctly to be understood that this presents the problem merely from one standpoint to pedagogy. In framing any

course of study for practical uses, many other considerations must of course be recognized.

Without exception, all text-books of drawings put forth by the leading publishing houses of the United States for kindergartens and primary schools, and all courses of study except for a few cities and localities, scattered as occasional dots over the American map, are firmly based on this idea of commencing with abstract type forms and proceeding by the logic of mathematics to more complex, industrial and ornamental forms. All forms studied are the simple type forms and their combinations divested of all matter which would distract the attention or interest of the child from abstract form. The systems of drawing in use in the primary grades of the public schools carry this same idea. I take the following from that of the first primary year, assigned by the system which probably is most widely used in the United States and with which all others are in a substantial agreement: lines, circle, cube, hemisphere, sphere, application of these forms to apple and kite, angles, shading, quatrefoil leaf, cross. The primary work and indeed the grammar is simply a development in complexity of these abstract forms.

The first problem will be that of analyzing the factors which appear in babyhood leading up to the point where pedagogy has undertaken the problem of education.

THE SCRIBBLING PERIOD.

During the second year of life, possibly in the last weeks of the first year, many children are interested in scrawling or scribbling lines upon paper or slate with a pencil.¹ In the various studies the observations indicate that the child is well on into its third year and even older before his scribbles begin to bear even a remote resemblance to the object which he may be supposed to be drawing.²

The progress and the transition is slow and gradual to drawings in which the child makes a distinct effort to represent an object.³ The child is interested in scribbling lines several

¹ Brown, p. 44, 30-26-18; Lukens, p. 80; Baldwin, 85; Shinn, p. 96; Sully, p. 33-5; Cooke; Ricci, p. 303; Brown, p. 63.

² Baldwin points out (p. 86) the growth from angular straight lines to curves, from movements one way exclusively to reverse movements and an increasing tendency to complex intricate figures which he thinks probably results from greatly increased ease, variety and rapidity of movement. Sully concludes, concerning this period, "With practice the child acquires by the second or third year the usual stock in trade of the juvenile draughtsman and can draw a sort of straight line, curved line, a roughish kind of circle or oval and even fits them together at angles.

³ Baldwin's child began to scribble in her second year and it was af-

1. A muscular interest in the exercise of muscle.
2. An imitative interest in performing acts which the child sees others perform.
3. A visual interest in the mere seeing of the marks the hand-movements produce.

The term "interest" will be used throughout in the broad sense of meaning the impulse which incites to action, whether that impulse is construed as conscious or unconscious, physical, psychical, or both; immaterial controversies will thus be avoided.

I. MUSCULAR INTEREST.

In the development of any muscular function, Preyer has shown, there is a certain cycle of progressive activities.¹ After muscle and nerve have come into anatomical existence, there is a period of impulsive activity not excited externally; the child twists and turns his body and head for months before he sits up, kicks his legs for months before he walks, babbles months before he utters a sound in the sense of speech. The interest here is, for practical consideration, wholly muscular. It is the play period in the life development of each muscular co-ordination, motiveless and an end and joy unto itself. Gradually developing out of this impulsive activity are actions requiring for their excitation some external stimulus, and still later the movement is excited only by an excitation which constitutes a motive. The child does not exercise for the sake of activity itself, but for interest in something it wishes to do or to possess. While, therefore, the muscular interest, pure and simple is a fleeting phenomenon of the preparatory stage to muscle functioning, nevertheless, since new muscles and nerve adjustments are constantly coming into functional action throughout childhood, in one form or another, muscular interest is probably ever present as an important factor and most predominantly in the early years. We may, then, recognize as a chief factor in this scribble period a muscular interest in mere exercise analogous to leg kicking before walking or babbling before talking. As the function of the muscles involved matures, the interest passes over to the subject matter for drawing.

All observers agree upon the general character of the early

ter nine months' persistent effort, at least, before the first rough representative effect appeared. Miss Shinn's niece commenced to scribble at the end of the first year. Sully puts the normal appearance of representative features in the second or third year; Preyer and Ricci think that the end of the third year is the normal beginning of representation. Prof. Brown's study indicates the first half of the third year. These studies would all indicate a period of one, and most probably, two years for meaningless scribble.

¹Senses and Will, p. 195.

stages of scribbling.¹ There is a "free aimless swinging of the pencil to and fro" in movement purely spontaneous (Sully). Cooke remarks that the child finds his pleasure in the free arm movement. Professor Brown neatly puts it "the child's interest at this period relates to the act rather than to the product."

II. The imitative interest, in general, develops somewhat later than the muscular interest. While Preyer finds some suggestions of imitative acts as early as the fourth month, the impulse is not as widely noticeable by most observers until the latter half of the first year. By the end of the year it is clearly the most striking feature of the child's activity, affecting the motions of the arms, legs and of the speech organs. This interest is clearly conditioned to a very large extent, at least, by the muscular interest, *i. e.*, the child attempts to imitate only those movements which he has, in the elements at least, exercised in the impulsive period. Preyer draws emphasized attention to this fact; the child in his impulsive period practices a large number of movements and adjustments and imitation comes in as a force in the selection of certain of these movements for practical use. He makes it appear extremely improbable that in learning to speak the child ever imitates the sound which has not been an element of his purposeless practice in the impulsive period. Sully also places emphasis upon this selective activity. The pedagogic method of nature is clear; it uses developed forms of activity and does not seek to build up new forms for itself.

As in the case of the muscular interest, so with the imitative interest, there is first a period when it acts for itself, but later, this interest passes over into the object imitated. Young Preyer at fifteen months, long before he could speak or understand the significance of reading, would amuse himself by holding a newspaper before his face babbling aloud, in simple imitation of an action he had observed in his elders. Baldwin observed his child, during the earlier period, looking not so much at the picture drawn, as at the movements of his hand and arm. He says the first attempts were "simply the vaguest and most general imitation of the teacher's movements, not the tracing of the mental picture, and the attempt was no better when a copy was made by myself on the paper." Dr. Lukens, writing

¹Ricci finds a network of lines running in all directions without displaying the least intention of representing anything. (p. 303.) Baldwin describes the movement in his child from her 18th to 27th month: "At first she made only sweeping arm movements, then began to flex the wrist somewhat and toward the end of the series, with no teaching, manipulated the pencil with her fingers considerably." (p. 83.) He finds at the ages up to the 27th month, no connection apparent between a mental picture in consciousness and the movements made by the hand and fingers.

of this period, says: "The most that can be said is that the child imitates in a general way the outward movements that he sees older persons make in drawing. He has not yet gotten the inside view of the process but only its outward, mechanical movement."

III. Another interest which probably to some slight extent impels the child to scribble is that of sight. But in its simple, unassociated state, this is extremely transitory and the interest in mere seeing soon passes over into interest in the objects which are seen. There is reason to infer, both on anatomical and objective grounds, that the main muscular adjustments of the eye mature early in babyhood. Preyer considers co-ordination complete at the end of the second month.¹ Miss Shinn's niece was able, at fourteen months, to pick out from bourgeois type, lower case, the letters "o" and "s." For simple interest in seeing Miss Shinn's notes show interesting facts.² But early in the second year, the child's interest in seeing is evidently that of the associated interest which the objects call up. The child will be most interested in those objects which he has seen definitely and has had most firmly and repeatedly associated with feelings of pleasure and pain. On this ground, the face of the child's mother is likelier to be an earlier and stronger interest and more capable of gaining control of his motor apparatus than objects forced casually upon his attention.

The child's ability to see and interpret pictures in some crude way, comes in probably in the second year.³

The next step of significance is, when out of this scribble, there appear formations vaguely and distantly resembling the model. Professor Baldwin (p. 90) explains the psychology of this transition somewhat elaborately. Briefly, his explanation is that in the scribble period the child's drawing movements are merely muscular, uncontrolled by the visual centers which correspond to the visual image of the object to be drawn; that gradually these visual centers gain control of the muscles of arm, wrist and hand in drawing and the child begins to make drawings in crude resemblance of the mental image. One is prone to gain the notion from the emphasis Baldwin places

¹ Senses and Will, p. 38. Donaldson: Growth of the Brain, p. 165.

² Shinn, p. 85.

³ Miss Shinn thinks Ruth closely associated a pictured cat with real cat at the tenth month; but certainly at the 14th month she picked out her father's photograph from a group picture of eight figures and shortly later, would call by name photographs of other members of the family. Pollock (Mind, Vol. III, p. 393) says his child understood the general significance of pictures in the 13th month. Sully (p. 309) has a case of recognition of pictured animals at 10 months, but he thinks this early form of recognition is probably on a level with Romanes's animal "recepts."

upon the details of the psychological explanation that there is sudden and complete transition. But, as the studies yet to be presented will show, it is of essential importance that this process of transition from muscular to visual control is an extremely gradual one, persisting in all probability throughout the kindergarten and primary periods. The tendency to regard this transition as something sudden and complete has led to most of the serious errors in the present systems of drawing instructions. It has been concluded that from the moment the child shows crude tendencies towards representation, he is ready to set up in business as a draughtsman, artist and observer. Pedagogy has at this point seized him upon the assumption that he is matured, anatomically and functionally, to perform any requirements made of him. On the contrary, these studies will show that the early post-scribble period is a mixture of muscular and visual attempts to control his arm and hand movements and that we must for years regard muscular control as dominant.

There are several peculiarities of the drawings of children emerging from the scribble period and persisting for a longer or shorter period. Many have bearings upon the pedagogy of the problem. We might consider the chief ones in the following order:

I. The child is inaccurate in a physiological sense.

(a) Traces of the aimless and purposeless scribble persist for months and even years after the child's drawing, in many respects, has representative features.

(b) The control of the child's arm and hand movements by his visual centers receives interference from muscular association and motor images and thus tends to break away from visual control interspersing the drawing with things felt and known as well as things seen.

(c) The child is inaccurate in the use of typical, geometrical forms, does not draw straight lines, lacks ability to see and arrange figures geometrically and logically. This tendency persists throughout the period under consideration.

II. The child shows generic interests in method and in the choice of subject matter for drawing.

(a) He shows tendencies which are probably due to the mixture of muscular and visual control expressed by his confidence in ability to draw.

(b) He shows a distinct preference for drawing objects which are connected with the human personality and activity.

III. The child is inaccurate in a psychological sense.

(a) He misplaces parts of a whole figure, *e. g.*, he puts eyes sometimes outside the head, legs detached from the body, leaves out neck, etc.

(b) He draws what he knows, not exclusively what his eye sees at any given moment.

(c) He is inaccurate in perspective effect and technique.

(d) After a child has learned to draw some object or some feature of an object in a certain way, this scheme or diagram tends to persist in later drawings regardless of differences of position of the model, either in visual sight or in the memory of the young draughtsman.

I. PHYSIOLOGICAL INACCURACIES.

(a) The scribble impulse, the uncontrolled and probably uncontrollable exercise of muscle generally continues in parts of the drawing of certain figures after the child is able to draw other parts of the same figure with some degree of representation; in the human figure, face, features and legs will generally be represented while other parts will be omitted or scribbled. This fact is very clearly shown in the progressive series of drawings to be found in those published by Professors Lukens, Brown, Sully and Cooke. The visual centers gain and hold control upon certain parts but are not able to maintain them in others. In a large percentage, this scribble tendency is to be observed in the drawings of kindergarten age and even of the primary school.

(b) There is every reason to believe that in early childhood, motor images derived from joint and muscle sensations of movement, form a larger proportion in the make-up of child ideas than in the adult mind, as compared with visual and auditory images. Drawing, in an artistic and industrial sense, requires the segregation of visual control, and its complete influence over the movements of drawing. To obtain this control has been the chief battle of the drawing teachers under the present systems; and genetic psychology is inclined to protest that methods of forcing are employed. The child frequently mixes up with his drawing movements those not directly under control of the visual centers. Froebel (*Education of Man*) observes "Here comes a bird flying, and thereupon the child draws a line symbolizing the direction of the supposed flight of the bird." Children will draw the wind and other invisible things. Barnes tells of a small child who drew a line from a boy's eye to the sky explaining that he could not make the boy look up and the line was to show he was looking at the clouds. Brown (p. 65) describes a little girl drawing a picture of her papa dancing and drew a zig-zag line which she explained represented the dancing part. "The movement of papa's dancing," comments Brown, "was as much a part of the image as was any one of his visible features."

The principle of which these illustrations are typical is that

the visual centers are yet in a period of very immature development and are constantly interrupted by other impulses. Passy (p. 661) tells of a little girl under his observation who in drawing from a model made a very gross error, which she later saw and attempted to correct by drawing the object over again; in four successive attempts, the error was repeated showing that the force of muscular association was greater than the visual centers could overcome.¹

(c) The conflict of the genetic and the logical order at this point is that the logical order takes no account of these conditions. Still more conflicting is the view requiring accuracy in the seeing and drawing of geometric form with mathematical precision. Froebel, as is well known, placed the mathematical sense the first in order, as it is logically, and the systems have adopted this theory. Accuracy and precision are essential prerequisites from the logical standpoint that technique precedes execution, clearly justifying the endless fine work and insistence upon accuracy in the kindergarten and primary school. But the genetic view sharply contends on the grounds of health and preservation, against injury to immature forms of development. A few studies have been made quantitatively by psycho-physicists in this field, those of Hancock, Bryan and others.

II. GENERIC INTERESTS IN MATERIAL AND METHODS OF DRAWING.

It would seem from the genetic standpoint, that we are brought to a standstill, that all drawing must be prohibited until the child is nine or ten years of age perhaps. Yet, it is admitted by all, that exercise is essential as a function of growth in the period of immaturity. It would seem that the genetic claims have forced the problem between Charybdis and Scylla.

But, at this point, the genetic argument introduces a new

¹This feature of motor control is capable of immense enlargement but it would lead deeper into psychology than the limits of this review would permit. Briefly, there is evidence of phylogenetic influence as well as ontogenetic grounds that the visual centers are less of a central office through which the ideas of the adult are adjusted than in childhood; that ideas expressed in visual terms have more of a sub-conscious muscular basis than introspection commonly reveals. Dr. S. Stricker in his interesting monograph (*Bewegungsvorstellungen*) elaborates from careful, personal introspection a most suggestive line of thought. He contends that to imagine clearly any moving object, he feels distinctly a sensation in his own muscles which would be employed were he to make this movement; for example, in imagining a man walking he feels the sensation in his thigh muscles; in imagining a horse pulling a load he feels sensations in the breast. If he forcibly suppresses the sensation strictly declares himself unable to imagine the movements from which he concludes that these sensations are essential to the imagination of movement.

factor and claims for it the absolute authority of pilot. This is the principle of natural interest viewed as an organic expression of physiological states. In this form, this is a principle which has not been recognized by the adherents of the logical order; to do so would be to introduce a factor likely to come in conflict with that of the logical order itself. Interest, as it has been treated by the upholders of the logical order, is an ephemeral state, of no real or organic significance, to be used as a convenient expedient or excited by temporary devices; but in the sense in which the word is now being put forward, in genetic psychology, its recognition urges a principle with roots as deep as logic and of more mandatory significance for the period of childhood. If interest is the principle of the importance claimed for it, the struggle for life or death of education by the logical order in young children must take place at this point. For it cannot be denied that much of the school work under the method of the logical order is and can only be accomplished directly in the teeth of interest shown to be generic and deeply rooted in hereditary tendencies in all probability. Pedagogy has been forced to decide between the logical order and interest so many times, and so axiomatic to adult minds does the argument for the former appeal, that the child's interest has been whipped into submission, branded as an untrustworthy will-o'-the-wisp until the whole process has been established as a fundamental pedagogic virtue. In recent years, metaphysicians have unloaded upon the subject a lot of offal from their decaying structures and created about it a necessary but unfortunate prejudice. But interest as put forward from the biological standpoint is something different from the brand heretofore sold in metaphysical and pedagogical markets. It claims an origin as deep and a sway as important in many lines as heredity itself. Hunger and thirst are forms of this interest; they are the voice of certain physiological needs. So, also, are the desires for fresh air, for warmth, for athletic exercises in a hundred different ways. We all recognize these interests and have no doubt of their authoritative right of command from complex physiological conditions. There are, it is true, in disease, hungers and interests which are false, though I believe that physicians are now generally laying it down as a principle that while the hungers and wants of the invalid sometimes deceive, still in the absence of any better criterion these are the safest guide for determining what the patient should do. But pedagogy deals not with the sick and abnormal but as a rule with the normal. The principle appeals in an even more stable form than in medicine. But when we admit the feeling of hunger and other bodily impulses as reliable indicators of delicate physiological state, we cannot logically stop with these. Dispositions,

tempers, traits of character, instincts, emotions, love, music, art, faith, and even the religious impulses, whose roots perhaps reach back into countless ranks of ancestry are none the less indications of physiological states of the organism at a given moment. The impulse of these forces are the individual's interests and indicate, in a delicate degree, fine adjustments within the organism beyond all power of any other kind. Moreover, as has already been briefly outlined, these interests pass through stages of development from impulse of muscular through reflex to interest in objects; a child's interest in certain forms of activity or even in certain objects is conditioned by the physiological stages through which this interest has been developed.

The attempt to apply the principle of interests to pedagogy must be attended with more care and critical inspection than has been applied in many of its applications. The evidence goes to show that children's interests have a wide arc in individuals; but, nevertheless, such mass studies as those of President Hall, Prof. Barnes and others, have undertaken with several thousand of children show beyond question that in certain lines at least, there exist generic interests, common to children of a given period of genetic development. The limits of this review are upon the generic side of interests, although it must be clearly borne in mind that there are included within the large generic arcs variable individual arcs, which must be considered by any teacher in the modification of any general course of study. While this principal interest may be attended with difficulties in application, while it may be shown that important exceptions under the rule must be made, nevertheless, viewed from this genetic standpoint, the principle of interest appeals as the safest general guide of what children should do with muscle and nerve adjustment in a nascent process of growth. Prof. Barnes thus clearly puts the issue: "We may say that the natural tendency in a child's development are right and to be encouraged; or we may hold that the natural promptings of human nature are wrong; that the aim of education is to divert the human soul from its natural course along some line determined by philosophy or theology. In either case, to act intelligently, we must know what the natural line of development is."

At this point the question which necessarily arises in the minds of those who have been trained to look upon the logical order as axiomatic in its declaration that a child must learn how to do a thing before doing it, is: How is the child going to draw if he is not taught by gradated steps of elementary simplicity? To the adult mind, steeped in this traditional dogma, this rises as an incomprehensible problem. It is the natural

view of the adult mind. But there is seemingly nothing incomprehensible about it to the child. The remarkable feature about children drawing is their absolute and unflinching courage and naïve self complacency, both with their ability to draw anything and everything they wish to draw and with what they have drawn. Passy (p. 615)¹ most vividly describes the attitude of a young child in drawing: "He does not hesitate but seizes his pencil and draws rapidly in an automatic manner. It is impossible to make him look at his model with any attention; if any one commands him to look at it, he hurriedly casts upon it a distracted and disdainful glance and continues without concerning himself with that which he sees. The moment he has finished, he shows it to you with a triumphant air."

Prof. Barnes in his study of 15,218 drawings by 6,303 children from 6 to 16 years, who were requested to illustrate the story of Hanns-Guck-In-die-Luft, finds that at 6 years of age, the children drew on an average 1.6 scenes; this average increased steadily until the boy, at 14, and girl, at 13, the average was a little more than 3 scenes each; from this time on, the average decreases and at 17 years was 2.4. Prof. Barnes comments: "This would seem to indicate that girls at 13 and boys at 14 become less daring in expression. The children who refuse to draw at all were over 13 years. Other studies in this line would seem to indicate that at 13, or the period of puberty, the children experience a change in ideals, and it may be that after this, they realize more fully, their inability to execute what they see."

O'Shea had a number of children draw from some object or person present and then from memory of some object or person well known to them. He reports: "While not one of the children up to nine years made any objection whatever I had to encourage those beyond that age to do the best they could and many of them seemed quite overpowered at first, especially in representing a boy or girl whom they could see. I noticed, also, that younger children rarely hesitated in drawing from memory, but go straight to work with their lines and dots to make man, woman, child, or other object, while the older children seem to be absorbed in meditation and do not draw so readily." In another experiment Prof. O'Shea had a number of children, from four to eleven years, illustrate stories which had been read to them, and they were given perfect freedom to express any difficulties which they met with. They were closely observed while the story was being read and during the making of the drawing. "From the records of five hundred cases

¹ Colonel Parker in "Talks on Pedagogics," p. 302, has a similar pen picture of child courage in drawing.

studied in this way about one per cent. indicated that they could not represent certain objects, among these being a bridge, a horse and carriage, and a fairy." At the same time, there was "no hesitancy in representing the wind, Jack Frost and other invisible things. It seems that with children of this age there are few objects ever seen or heard of that are too difficult for speedy and confident representation." Prof. O'Shea concludes: "It would seem, then, that children from four to nine years or thereabout, represent the object involved in drawing a story as readily and with as much pleasure as they would in repeating the story orally or even in listening to it. After the age of eight or nine, it seems that the difficulty of representing begins to be readily appreciated and there is less confidence and satisfaction in the work."

Dr. Lukens, in the course of his article, offers a number of individual illustrations of this principle of early courage of execution. A noteworthy one will be found on p. 92, *Pedagogical Seminary*, Vol. IV, in the case of five-year-old Tom, who, in the course of a year, struck off several hundred drawings, a partial list of the topics of which Dr. Lukens gives; they range over the whole field of child thought, from scenes of Jack the Giant Killer to the picture of a house on fire; no trace of a problem of ease or difficulty of mechanism is to be found.

In Prof. Brown's study there is offered some interesting data from children under five years showing that they did manifest lack of courage when called upon to draw from models before them, but this feature does not seem to appear in memory or pictorial drawings.

Certainly, nothing is more clearly evident than this, that children during the kindergarten and primary grades, allowed to choose their times and objects for drawing are not spontaneously worried about the problem of how to draw. The evidence is equally clear that there does later come a time when the child does become self-critical of his work, does hesitate, does need help and will seek it in the mechanism of expression. The criticism which genetic psychology would attach to the present system is not that it has taught mechanism too much but it has taught it at the wrong time; that the school curriculums have attempted to answer the child's question of how to draw several years before he has asked it or wants to know.

This subject of courage and confidence in the ability to draw bears upon the important problem of accuracy. Accuracy is the core and radiating center of the systems determined by the logical order. Text and teacher's hand books are sprinkled page by page with hints, rules and regulations for teaching and insisting upon accuracy—accuracy in line drawing, accuracy in perspective, accuracy in seeing, accuracy in representation of

the model—all of which go to show that the problem at best is a persistent one throughout the kindergarten and primary school. The child's pertinacity in carelessness as to accuracy, has only been equalled by the pedagogue's pertinacity in his attempt to force the child to be accurate. The physiological side of the problem has already been touched upon indicating that there is a strong basis and justification for this pertinacity on the child's side of the matter, and vital danger in the pedagogue's pertinacity. Probably the best objective corroboration of this physiological view lies in the evidence of the continual and monstrous effort to enforce it; further, after all, with the best of texts, devices and entreaties, punishment even to the rod, with the most conscientiously unmerciful teachers in the enforcement of this logical requirement and with the most obedient pupils, the drawings of young children who have lived through all this merciless drill until the drawing lesson has been associated in the minds of teachers and pupils with all that is disagreeable in school life, show little gain in the point of accuracy. Mrs. Maitland comments upon the drawings of several hundred children who had attempted geometric figures which they had learned to draw in school as follows: "In the conventionalized design where the aims to be attained are very definite, it is to be deplored that in this class of drawing where accuracy is a supreme virtue, inaccuracy and slovenliness are the conspicuous elements. The lines are often ruled, they are too long or too short, the angles are not true, the squares, circles, triangles, and sections are not true."

The spirit of texts and school curriculum under the logical order is typically illustrated by the view of Mr. Sparks, of South Kensington, quoted by Mr. Cooke: "The main thing (in the teaching of drawing) is to make children accurate; that is the moral of the whole thing. Some sentimental objections have been made to a hard and fast and repulsive method, but it is necessary to be very matter-of-fact in training artisans to be accurate in understanding any drawing that may come before them."

It is but too clearly evident that there is no ground of compromise between the logical order and the genetic view in the point of accuracy. Accuracy is a fundamental essential to the entire system and the fact that a child is inaccurate by nature becomes to the minds of system and curriculum makers the most mandatory reason in the world for the need of drill. The genetic conclusion is diametrically opposed; the fact that children are inaccurate and are not interested in accuracy is the very best evidence that they should not be forced in drills of accuracy; it indicates to the supporters of this view physiological causes; the child's hour for accuracy has not yet come. Until

it does come the pedagogue will be wise to lie abed and wait for the child to grow.

Probably the study most directly bearing upon the subjects for drawing best adapted from the standpoint of children's interest is that of Mrs. Louise Maitland. It comprises 1,050 drawings from public school children from six to seventeen years, 350 from eighteen children in the Stanford Experimental School, of five years and upward, besides a hundred or so more. It will be observed in the tables that in almost all of the rubrics a significant change of interest takes place about the 10th year. At five to seven years, 55 per cent., and at eight to ten years, 62 per cent. draw separate objects, and at eleven to thirteen years the percentage jumps to 91 per cent. and at fourteen to seventeen years, to 98 per cent. Picture stories are preferred by 32 per cent. of children five to seven years, at eight to ten years by 33 per cent., but at eleven to thirteen years this ratio falls to 6 per cent., and at fourteen to seventeen years to 1 per cent. The same change at this period is to be noticed in their preferences for objects. The following table shows what children drew when asked to draw anything they pleased:

	5-7 yrs.	8-10 yrs.	11-13 yrs.	14-17 yrs.
Human figure	45%	40%	8%	5%
Animals	23	21	11	10
Plants	35	30	17	11
Houses	32	30	13	4
Mechanical inventions	8	13	11	8
Still life	40	47	39	31
Geometric design	5	12	28	37
Ornament	3	3	4	8

Significant facts to be observed in relation to the logical order are that the human figure, which comes last in the scheme of the logical order, comes first in the order of genetic interest, and that interest in animals, plants and houses, which the logical order also would put last, are shown to have their larger ends of spontaneous interest in childhood, tapering with increase of age. On the other hand, geometric design and ornament, which are exclusively the warp and woof under existing systems, show an almost inappreciable interest in children under 10 years, but become important after that period. It must be remembered in this connection that probably the larger number of these children receive instruction in geometric design in the public schools.

Dr. Lukens's study of twelve hundred and thirty-two spontaneous drawings of children under ten years, corroborates Mrs. Maitland's figures. He finds that 44 per cent. of the whole number are drawings of the human figure, and if he should

base the estimate upon drawings which contain the human figure (which would include pictorial drawings) the percentage would be 75. Geometric figures and ornament combined were significantly represented by only 2 per cent. He concludes that the thing par excellence for all lower grades and kindergartens is the human figure and from the date of his investigation forcibly condemns the prevalent use of geometric form.

Ricci's study of 1,250 drawings is wholly upon the human figure.

Studies under the direction of Prof. Brown deal almost exclusively with the human figure, broadening to objects with which the child is brought in contact in his natural experience, mainly animals, houses and actions. Prof. Brown says: "It seems clear that the first drawings of all these children was pictorial rather than decorative in character. The idea of making symmetrical figures for the mere sake of beauty was a later development if it appeared at all."

By Prof. Barnes's table of 15,218 drawings, it would be indicated that the human figure in different attitudes occur in every drawing; but here his subject, the story of Hanns-Guck-in-die-Luft, will of course encourage such a result.

Sully's elaborate study reaches the same conclusion. He says, the human figure comes first in the child's interest in drawing and animals closely follow.

The second class of material which the systems give largely after geometric figures, is decoration and design, which grow with clear logic from the arrangement of geometric figures. It forms a large part of the form and drawing lesson in the kindergarten and primary school. It is supposed to cultivate an artistic taste and appreciation. The results in this field are as unanimous as in the former case. Mrs. Maitland, as stated, finds that from five to seven years 5 per cent. draw designs and 3 per cent. ornaments and this ratio increases to the ages of fourteen to seventeen when 37 per cent. prefer conventional designs and 8 per cent. ornament. Dr. Lukens finds that under ten years of age 2 per cent. covers geometric design and ornament combined. Prof. Barnes remarks that out of the 15,218 drawings not more than ten or twelve papers are decorated in any way with borders or ornamental lines or fancy flourishes. Prof. O'Shea placed before groups of children, five to seventeen years, a chair or table which was ornamented. He says: "With children of five, the ornamentation was never represented; with children of eight, exactly 50 per cent. of the drawings showed evidence that their authors had tried to reproduce the ornamentation, while with persons of sixteen, 87 per cent. represented the objects ornamented." Ricci sums up his study of the question with the sentence, "Art as art to children is unknown."

He finds that drawing is merely a language to young children and their zeal is put forth in symbolizing all there is in their minds. Sully says (p. 382), "At no stage in this child art can we find what we regard as elements of artistic value." However, in these statements, it is but just to state that nearly all explain that by concluding that children have no art in their drawings they do not mean to imply that the child has no art in his nature. Sully, for example, emphasizes the art impulse in the child nature. "We are quite justified," he says, "in speaking of the art impulse as a common characteristic of childhood." But in the early stages of these drawings under consideration, art does not seem to have reached a stage ready for expression in form.¹

The only observations throwing light in any sense of exception to what has preceded are those of Miss Shinn,² chronicled in her Notes. The child was given the Froebellian gifts in the second year and a careful effort made to educate the child with them. At times, as the notes show, the child took a warm in-

¹ Other investigations of child nature which have no place in this review are strongly pointing to the suggestion that we are acquiring altogether too much expression from the child in certain lines. Much of his nature and much that is strongest lies as yet in the form of vague instincts and below the threshold of consciousness. To this class of feelings, as it were, the art instinct properly belongs; while the child may be said to be strongly animated by instincts which will develop into artistic powers, it's an altogether different matter to assert that he is ready to stand and deliver these in the form of language, in form acceptable to the schoolmaster. Heim, in his *Zeichnen und Schen* (p. 16), strongly inveighs against the emphasis placed upon ornamentation in early education. He points out on utilitarian grounds that it is only a very small part even of æsthetic appreciation among adults that depends upon ornamentation. A true sense of art, he says, only comes from the irregular forms of nature and these tend strongly to excite the child and should be the material for educating his artistic impulse.

² In a letter to the writer, discussing this point, Miss Shinn says, "the interest in type form did not last after the identification of them had lost its novelty. Ruth is now six years and a quarter. She uses her knowledge of the plane forms as she does that of any ordinary fact—as we do; that is, she would refer to a square tile or an elliptical garden plot merely to describe them as she would a tall tree or a white flower. The form is not a feature that interests her especially, and unless she found it necessary to bring it in, she would not be apt to mention it in a description. Solid form she never mentioned of her own accord, though she knows whether a thing is a sphere, a cube or cylinder. . . . I made a good deal of effort in the third year to follow the Froebellian method—with signal ill success. The child utterly declined to be the child of Froebel and detested all that Froebellianism assures us the child loves and found easy all that it tells us is hard. This was also the observation of the other college women in our seminary. . . . On the whole, I found better adapted to the child's nature and entry into education by the door of literature rather than mathematics."

terest in them; her first drawings were of the geometric forms though at so early a period (under two years of age) as to suggest the probability that the interest was merely muscular. Later observations go far to vitiate the significance of the earlier observations.

The principle of a generic order in the selection of features first drawn in the representation of the human form, which has received some attention from Dr. Hall and Professors Barnes and Sully,¹ indicate that the child tends first to draw the face and ends with the body and neck. The cause of this fact is, doubtless, that babies first distinguish as objects the human face and its expression by the eyes and mouth, as Preyer has shown. It indicates that the visual centers gain control of the arm movements in drawing the human figure in the order of the parts most often seen and which are, for practical purposes, most interesting. The human face, its eyes and mouth are early matters of interest to the child, while the body and neck come after the arms and legs in point of practical interest. The pedagogical conclusion would reinforce that already suggested, that the first objects in drawing should be those with which the child has been most intensely interested in his daily experiences and in a practical way. Abstract geometric forms the child can, of course, be made to look at, but this is altogether another thing from making him see them with such intensity under the complex physiological conditions which build up visual centers in the nervous system capable of control of intricate arm and hand muscles.

The force of these foregoing studies upon what subjects are most interesting to children for drawing purposes, made upon thousands of children of America, England, and as well in sunny Italy where art has had its abiding place for centuries, is clearly in conflict with the dogma of the logical order which would reverse the steps in learning to draw which these studies suggest. They indicate that the interest in the human figure and human affairs, irradiating to the things with which the child deals in his daily experience, is generic. The human figure, which in the logical order comes last, and in the adolescent period comes in the genetic order with the babe in his crib, and, so far as this data would suggest, interest proceeds toward and not from the logical geometric simples. The pedagogical inference, in the language of Dr. Hall, is that the present system should be stood on its head. It is probably misleading to say the child is interested in drawing the human figure. That im-

¹G. Stanley Hall: *Pedagogical Seminary*, I, p. 166. Earl Barnes: *Pedagogical Seminary*, II, p. 460. Sully: *Studies in Childhood*, p. 337, *et seq.*

plies an art interest, for art's sake, which is clearly not the case. The child is a human egoist and his interest naturally centers around himself, man and what man does or can do in daily child experience of sight and action. Ricci succinctly expresses the point when he says: "Children by drawing describe man and things instead of rendering them artistically. The child tries to reproduce man in his literal completeness and not according to visual impression. They make, in short, just such a description by drawing as they would make in words." In the child's sphere of ideas the beginning and center is man's activity and this interest irradiates. Drawing as an expression of these irradiating ideas—just as speech, and later, writing are—must in consequence follow along the lines of this diffusing interest.

III. PSYCHOLOGICAL INACCURACIES.

There is a class of inaccuracies which are not clearly dependent upon the coarser and more fundamentally physiological conditions. To avoid any question of dispute, they may be classified as psychological, not, however, with the implication that they have no physiologically causal dependence.

(a) The child misplaces parts of a figure indicating that his visual centers are not in such firm control that they can continuously hold the attention to the object as a whole. Miss Shinn's niece, for example, puts in a drawing a little girl in one corner and her dress in another, both hands on one side and her mittens quite away from the hands. It is quite a frequent thing to find the eyes placed outside of the head or the arms or legs detached. All observers mention this. Sully remarks that it is astonishing what a small child can do in the way of dislocating and putting things in the wrong place. This feature is most strongly represented in the earlier period and many examples will be found in the illustrations printed in the articles of Sully, Lukens, Cooke and Brown. Passy remarks: "One might say that children exaggerate details; it would be more exact to say that they draw without consideration of the whole; in reality *l'ensemble* does not exist for them; one can best define the drawing of a child as a collection of impressions more or less disparate; each part is drawn without regard to relation." That this feature persists till late is shown by the fact that Professor Barnes who studied deals with children over six years of age places considerable emphasis upon it.

While the exact psychological import is not clear in detail it is sufficiently plain that it is a sign of an immature condition of control by visual centers.

(b) After a child has learned to draw some object or part of one, he tends to use this scheme as a conventional form, as

it were, in the drawings of all objects or parts which in any way suggest it. Professor Baldwin's little girl, after learning to draw the human figure, would put arms on a bird. We thus find tendencies to put human faces on animals' bodies or to draw an animal as a man on all fours. In the grosser forms of this feature, the child neglects to look at any special attitude, but, as Passy says, mechanically reproduces the conventional form which he has habitually associated with it; thus having learned to draw the figure of a man in one certain position, the child uses this conventional form for man in any position. Passy and O'Shea posed as model in various attitudes, both full face and profile, before classes of pupils. O'Shea's results, with which Passy is in agreement, is that in no matter what position the model stood, the same picture grew under the artist's hand, as he had made it perhaps hundreds of times before. Children who made front views would make them when the model was in profile. This refers to children under ten years of age. "But it seems different with older children," says Professor O'Shea, "I have been unable to get those above ten years to represent readily a person whom they could look at and who stood in a different position from what they had been accustomed to represent in their drawings." Another experiment to discover whether certain conventional types are carried for a long time, Professor O'Shea examined the drawings of a class throughout the period of over a year; on an average one hundred and fifty drawings were made by each child and the persistence was clear. Some children always show roots of trees, have always the feet of the human figure turned in opposite directions, always have the clothing showing buttons, etc.

The psychology of this feature indicates the law of strong muscular association that any act once performed in a certain way tends to repeat itself unless inhibited. The inhibition in this case must of course come from the eye perceptions of the model. The fact that the eye does not interfere clearly indicates the immaturity of the visual centers and further that muscular associations are powerful where this anachronism occurs.

(c) Closely allied with the foregoing is another tendency which has caused much discussion and is universally admitted. It is that children under the tenth year, at least, tend to draw what they know about an object, not merely what their eye at a given moment, in the study of a given model, sees. They draw both sides of a house, or the inside of it, from an external view, two eyes in a profile face, or will turn over a profile picture to find the other eye, make the farther leg of a man on horseback show through the sides of a horse, picture the stomachs and lungs in human figures and feet within shoes. Clearly, before anything can be done in perspective from a logical stand-

point, this error must be corrected. Consequently, in the systems, immense efforts are constantly put forth to meet this difficulty even at a very early age and writers from this standpoint, in teachers' manuals, have made the expression, "Draw what you see," the shibboleth of drawing instruction.

The most direct and valuable study upon perspective is that by Mr. Arthur B. Clark (in *Studies in Education*, No. VIII). It contains illustrations and charts showing the development by ages in the power of perspective. A most important principle which Mr. Clark urges is that there is a progressive ability to see and draw perspective effects according to age whether or not children receive special instruction; that it is a matter dependent upon age and development rather than upon instruction. Mr. Clark stuck a large hat pin through an apple and asked 408 children, ranging in age from 6 to 16 years, to draw it. "With two or three exceptions," he says, "it was drawn in but three ways; 137 drew it clear across the apple (*i. e.* drawing that which they could not see); 150 drew the pin to the edges of the apple; and 121 drew the complete, perspective effect." An accompanying chart shows that in the order of age ninety-eight per cent. of the children of six years drew the pin through the apple (*i. e.*, drew what they knew, not what they saw); the curve decreases gradually until at nine years only 40 per cent. drew it in this way, 40 per cent. drew it to the outline and 20 per cent. drew the perspective correctly. At ten years, the number who drew what they knew falls off almost perpendicularly and at 14 years, there are none who do not make some effort to draw what they see. The curve for true perspective effect begins with 2 per cent. at six years and gradually increases, reaching thirty per cent. at ten years and fifty-eight per cent. at sixteen. Books laid upon a table for these children to draw show results in chart form practically identical with the foregoing. This study taken by itself would indicate that the average child should have extremely simple perspective problems until the ninth year, if any at all, but after that age, certainly, the great majority try to draw what they see and consequently the time for special instruction has come.

Barnes collated 12,740 human faces drawn by children; at six years twice as many full faces were drawn as profiles; from six to thirteen years, full faces decreased and profiles increased and at thirteen there were twice as many profiles as full faces. The number drawn of each was equal at a point between nine and ten years. Barnes comments: "This may mean simply that after nine years the child tries to really represent the face and then the profiles are easier. If this be true, it helps us to locate the point in the child's development where he begins to represent things as they really are instead of diagrammatically,

and nine years would seem to be the age at which the grammar of drawing might be introduced."

Sully finds that the profile is the natural symbol of the human face used by children up to five years of age. Dr. Hall finds that out of 44 heads drawn by children entering school only nine are in profile. It will be remembered in the experiment of Prof. O'Shea, already quoted, that children under ten show little hesitancy in drawing anything, regardless of model or memory, while those over that age tend to hesitate and feel embarrassed.

The psychology of this feature, carrying out Baldwin's general explanation, indicates the inability of the visual center completely to control the drawing movements, and that associations muscular, and other, continually interrupt this control by the visual centers; that other ideas in association with the visual centres are really stronger than these and seize the motor apparatus so that the child draws by the control of centers, represented by ideas he has about the object. In the apt language of Ricci, the child's drawing tries to express just such a description as he would make in words. It is clear that the conventionalizing tendency and the tendency to draw all that is known offer most serious obstacles, while they continue dominant, to instruction in drawing according to the logical order. Until this difficulty is overcome, little can be done in the matter of exact and accurate form study. The studies strongly indicate that the average child does not reach this period normally until the ninth or tenth year. Effort to force the child in this matter would, from the genetic standpoint, be injurious. The upholders of this latter view are inclined to maintain that drawing up to this age is not art, is not representation, is not even form study—it is a language to express any and all ideas of child life.

Sully, Hall and Passy draw a very close parallel between the figures of children's development in drawing with the development of similar instincts in the race, to which the reader is referred for details. All of the chief fallacies and anachronisms of children's drawings are found in the drawings of primitive man and primitive man for centuries used grotesque symbols barely representative as a means of writing, of expressing ideas. This view of such a period in the development of art is in full accordance with Hegel's theory in his *Philosophy of Æsthetics* though from an entirely different philosophical basis. He divides art development historically into symbolic, classic and Christian. The symbolic period was that of savagery when man did not conceive the idea of representation and his drawings were vague and bizarre; he expressed power by great size or multiplicity of limbs, heads, etc., without much

evidence of representative attempt. In the classic age of Greece, the expression was fully adequate to the idea and representation reached its height. The analogy of these children's drawings with this symbolic period is clear.

The significant feature for pedagogy, illustrated by these cases is, that drawing of children up to nine or ten years stands on the level of writing; by it he expresses any ideas that he might express by words; while not exactly symbolic in the strict sense of the word, it is more symbolic than representative¹. It is only later that the child tends to limit drawing to the expression of ideas of accurate form. The genetic view does not dispute the logical view as to the necessity for drawing what is visually seen, but asserts that in the present systems this work has been put several years too early and protests against the forced methods which have necessarily been used to compel the child to do that which he is not ready to do.

A serious objection arises necessarily, upon the suggestion that the systematic instruction by the logical order be postponed at least until after the ninth or tenth year, that there will not be then time to teach the subject in the remaining school course. This objection in its naked form is certainly a forcible one, and one that the upholders of the genetic view are not yet prepared to meet with a definite plan; it has not yet been tried. The answer, however, would probably be along some such line as follows. The replacing of the systems of drawings upon the logical order by a system based on the genetic order does not mean that there would be no drawing instruction in the kindergarten and primary grades. In the reorganization of matter, methods, and system, the child's interest probably would require more attention to the subject than at present. So far as the mastery of accuracy and ideas of geometric form are concerned, there is every reason to feel confident that these would be more quickly and readily acquired at a period when the child has a strong, instinctive interest in them than at a period when he has not. We are all ready to grant that nothing would be gained and much lost should we attempt to teach babes to walk before their natural period for walking; stunting and permanent

¹ As Professor Brown and Miss Shinn point out, the word "symbol" is hardly the best word to use in this connection. It is clear that the child himself does not as a rule consider his drawings merely as "standing for" the object. It is ever, more or less, a representation from the child's standpoint. But in the sense in which Hegel used the term, the savages were equally confident that their rude drawings were not like the object. So probably the term "symbolic" in its Hegelian significance will do as well as any as an expression to denote drawings from general ideas not limited merely to those referring to exactly what the child sees, but including, as well, what he knows.

injury probably would be the only result and no time would be gained.

To recapitulate, the progress of a child learning to draw is roughly divisible into three genetic periods, although it must, of course, be kept in mind that there is no definite point of change.

1. A period in which the movements are wholly muscular and are unguided by the visual centers in any degree; roughly, this period is that of the second and third years.

2. A period roughly between the fourth year and the ninth or tenth, characterized by the first beginning of crude representation and slowly proceeding toward an interest to accurate drawing of objects as they are really seen. During this period, the visual centers show evidences of extreme instability to control the delicate muscles of the arm, hand and fingers which must be presumed to be coming into functional existence throughout this period.

3. A period beginning with an interest in accurate representation of what the eye sees to the exclusion of associated ideas.

This review has dealt only with the first two periods.

To sum up and place the problem of education involved in the clear light of contrast from the standpoints of the logical and genetic views, the use of parallel columns may be suggestive. It is to be understood the term "child" is not used beyond the ninth or tenth year.

THE LOGICAL ORDER.

The child's mind is a *tabula rasa* upon which anything considered by the educator desirable may be written at the will of the educator. It is the business of the educator to select and write the knowledge most desirable and in an order determined by a logical analysis of the subject.

Childhood should be shortened to its lowest possible limits and as rapidly as possible the child should be induced to put away childish things.

The child is a little adult. If we take cross sections of the human mind at various

THE GENETIC ORDER.

The mind of a child shows, in some fields at least, which have been investigated, distinct generic tendencies to select certain material and methods for its education and reject other material and methods. It is the business of the educator to make use of these generic tendencies as interests and to subordinate instruction to them.

Investigations point to the probability that the child who is most the child, as a child, will be most the man, as a man; therefore let childhood ripen in children.

The child is not a little adult. Investigation indicates that he grows in spots. Cross

levels from birth to adult life we shall find that the ways of thinking are identical in kind and character.

The steps by which a child learns a body of knowledge or training, as, for example, accurately to represent in drawing, are identical with the processes by which a full grown man logically thinks them.

The determining principle in forming a course of study in drawing should be that of the synthetic combination of the parts obtained by analysis of the subject matter concerned, in a logical way, according to inherent relations existing between these parts.

These parts thus obtained by analysis will be the abstract geometrical simples of form divorced from all matter or distracting ideas and these the child should be taught to recombine and finally he may be led to natural objects in which both matter and form appear.

The child should be taught fully and completely the mechanism of how to draw before he is allowed to draw from his own ideas.

The first essential step in

sections show changes, in kind, in the ways of thinking though these successive layers show causal relations, one with another, just as, while the bud is not a leaf, yet there is a causal relation between the two, and healthy and mature functioning of the bud is essential to the best activity of the leaf.

In certain essential respects, at least, there is evidence to show that the steps by which a child learns to represent in drawing are radically different from the processes by which a full grown adult thinks them.

The determining principle in forming a course of study in drawing must be that of the child's generic tendencies or interests, modified by individual interests. Investigation indicates that these interests require an order of instruction more nearly the reverse of the logical order than identical with it.

The child's generic interest shows that he should commence drawing with man and the things that men do or have about them—the human figure, the house he lives in, animals he sees or fears. Matter and form are therefore inseparable in childhood and the progress is toward a separation; hence, abstract geometric forms will come last, not first.

The child should be allowed to draw from ideas and in doing so, and under the influence of the interested excited mechanism should appear as a subordinate factor.

Accuracy is a power depend-

drawing is that of accuracy, for this is the prime requisite of mechanism. All success will depend upon forcing the child into habits of accuracy of sight and movement.

Drawing should originate and cultivate artistic instincts.

The material best suited for originating art instinct consists of the dislocated parts of conventional designs and the typical geometrical forms divested of all that would interest the child and thereby distract his attention.

Drawing to the child should be made to deal with form exclusively.

ent upon physiological maturity; the first consideration should be prevention of physiological injury; the time for drill and accuracy is indicated by the time interest develops in it. By reversing the relative order of mechanics and drawing from ideas, the essential place of accuracy is also reversed.

Instincts cannot be originated. They are probably determined for us by ancestral tendencies and have a genetic order of development in the individual. The child shows practically little of what is ordinarily meant by artistic instinct and it is not ready for formal expression.

The child has practically no interest in conventional designs nor in abstract geometrical forms; such instruction should at least be postponed.

Drawing to the child is language for the expression of his ideas; and form, pure and simple, constitutes a very small modicum in his interest. It is not possible to segregate form in the child's mind in an intelligent manner to him.

ORIGIN AND DEVELOPMENT OF HOME AND LOVE OF HOME.

By L. D. ARNETT, Fellow in Clark University.

The object of this study is to set forth some of the conditions of the care and provision for offspring and to follow out, in a general way, the widening stream of interest in the welfare of progeny as shown by any preparation of the parents for them. This presupposes in a general way what is meant by home. Home in general, and in the wide sense of the word, is the place where offspring are born and pass through the stage of helplessness to that degree of maturity whereby they are able to gain their own subsistence. It centers around the spot selected by the mother and on her precision, erring or unerring, depends the continuation of the species. The conditions of the environment necessary for the life of the protozoa are comparatively simple. The short period of birth, if it may be so called, since the two organisms produced¹ are exactly similar, except in size, to the parent, renders the food of the parent suitable for the offspring. The environment in which the parent thrives well is especially suited to rapid multiplication of offspring.

A few instances may be noted where eggs are even deposited, apparently, without any provision on the part of the animal as to the future of its species, yet nature in her workings is not prolix, and the law of parsimony is everywhere predominant. Many insects deposit their eggs where they feed because their larvæ are able to feed on the same. Brauer's Classification is based on the similarity or dissimilarity of the food of the larva and imago.

The vast body of life of the ocean is one in which the different forms are ceaselessly feeding on one another. It is a basin of food, of which the countless offspring are evidence. Among the vast majority of its life the offspring can subsist beside the parent, and the one condition necessary is, that the number is great enough that one, of each sex, out of the 9,000,000 eggs laid by the cod,² for example, may reach the procreation period. The monotony and density of marine life,

¹ Balfour: *Comp. Embryology*, p. 7.

² Günther: *The Study of Fishes*, p. 160.

save for the effort to escape being destroyed, is so great that the least limited sphere of activity and neurotic development is called forth.

Some Conditions Fundamental to Nest-Building. The selection of some particular place for the eggs, and especially the concealment of them in some way from enemies marks a great advance. The long journey of the salmon from the sea, costing the adult its life, shows how necessary it is for the eggs to be deposited in their proper place and what a sacrifice the individual makes for the species. Insects have a great advantage over some other species in the amount of food. While some of them thrive on special plants others have a variety of foods. The common nettle¹ is fed upon by thirty distinct species of insects while the cabbage furnishes food for two hundred different kinds. The great mantle of green herbage, almost without distinction, furnishes food for some of the larval forms. Among the lepidoptera, where the eggs are very numerous, Sharp² thinks they are discharged almost at random in suitable spots, but moths such as the *Clesiocampa neustria* fasten their eggs around the stem of the food plant in a very perfect and artistic manner. He says, that some of the butterflies seem to prefer to oviposit by placing an egg here and there and do not seem to risk many in one situation. Trouvelot noticed, in his study of the silk worm (*Telea*), that while the moths laid their eggs on the leaves and twigs, that they were sometimes laid on plants which the larvæ refused to eat, and, since there was none near on which they could feed, they perished. The color of the egg is a means of protection, and its value for that purpose depends largely on the environment. This is noted most strikingly among birds. In his study of life forms Erasmus Darwin³ observed that "the eggs of hedge-birds are greenish with dark spots; those of larks and partridges are russet or brown, like their nests or situations." Poulton⁴ thinks that a process of natural selection has brought the change in color of birds' eggs from the original whiteness of the serpent. Unconcealed eggs are almost invariably colored or marked in some way, while with concealed eggs natural selection has ceased to work and if they have been of a different color they have reverted to the original. The colors of the eggs of the barnyard fowl may be cited as an instance of

¹Badenoch: *Romance of The Insect World*, p. 39. (*Note.* This estimate of the insects living off the cabbage plant includes those that feed on the cabbage parasites.)

²Camb. Nat. Hist., Vol. VI, p. 322.

³American Nat., Vol. I. Silkworms.

⁴Zoonomia, Vol. I, p. 510.

⁵The Colors of Animals, p. 62, *seq.*

the slow reversion from the brown color of the egg of the jungle fowl to the white color. Whether surrounding objects can affect the color of the eggs has not been definitely determined. The formation¹ of the shell and the deposition of the pigment forming the markings is a process usually referable to the walls of the oviduct, and is related to the pigments of the blood and bile. For some influence birds have been known² to vary the color of their eggs. Erasmus Darwin³ thought that it was due to the imagination of the female while others have thought that the nervous system is the direct medium through which the environment acts.

The safety of the egg is further ensured by many animals against extremes of temperature. Like the germination of the seed, a certain temperature must be maintained for a definite time to set in motion the rhythmic action of life. The migration of fish to their spawning ground is thought to be excited by the approach of the temperature of the water towards a limit that is favorable for the hatching of the eggs. The change⁴ may be an approach toward warming or toward cooling water. Too cold temperature delays hatching, and as they lie open to the attacks of enemies the chances of their hatching and reaching maturity is lessened. Insects usually place their eggs where they will not be affected by the scorching rays of the sun.

An example of the economy of nature is found in the adjustment of the food stored up in the egg case to develop the fertilized ova. Without any waste the food is just sufficient for development to a stage where some other method of getting nutriment is already provided. Gadow⁵ says that as a rule "the greater the amount of yolk the smaller the number of eggs produced." The yolk-glands of the eggs of the lowest worms⁶ represent a degenerate portion of the ovary. In these the cells have become more highly nutritive than ova. Gegenbauer thinks that the origin of the yolk-gland is probably to be found in the division of labor of a primitively very large ovary.

The yolk is a store of food collected around the ova, to a greater or less extent from the germinal epithelium of which it is originally a part. For most⁷ animals this forms a large part of the stored up food. Another source of supply in

¹Geddes and Thomson : *Evolution of Sex*, p. 104.

²Nature. Vol. VI, p. 547.

³*Op. cit.*, p. 511.

⁴Report U. S. Fish Com., 1876, p. 507.

⁵Camb. Nat. Hist., Vol. VII, p. 53.

⁶Geddes and Thomson : *Evolution of Sex*, p. 61.

⁷Hadden : *Study of Embryology*, p. 5.

some animals is found where the primitive ova feed upon its neighboring germ cells. This method of storing up is characteristic of some Hydrozoa, insects, etc. A third source, found among many of the lower worms, represents the degenerate ovary. These cells collect about the ovule and form a future store of food.

The quantity of food thus stored up about the ova is characteristic of the species and is adjusted to the later stages of food and growth. Where no future provision of care is destined by the parent proximity to its future pabulum is essential. The insect world is dependent to a very great extent on the certainty of the larvæ finding the proper food. Yet this store is so great that the risk may be small. Of the vegetable feeders, even if many are illy placed for food, the chances are always in favor of the great majority surviving. Wallace¹ noticed instances of misguided selection among the insects of the Malay Archipelago.

Some of the Ptilenus find their life-long food in decaying or dry wood fiber, and this condition may even be produced by insects for their young. The Hickory² girder, one of the Longicorn beetles, cuts a groove about one-tenth of an inch wide and the same depth around the young shoot just below where the egg is deposited.

Most of the vegetable feeders among the insects prefer the living fiber. Gall flies,³ for instance, deposit their eggs in the living tissue of the leaf or stem and the resulting excrescences are due to larval irritation. Weismann⁴ mentions the description of an insect (*Rhodites rosæ*) depositing her eggs in the tissue of a young bud. He says that "she first carefully examines the bud on all sides and feels it with her legs and antennæ. Then she slowly inserts her long ovipositor between the closely rolled leaves of the bud, but if it does not reach exactly the right spot she will withdraw and insert it many times, until at length when the proper place has been found she will slowly bore deep into the very center of the bud, so that the egg will reach the exact spot where the necessary conditions for the development alone exist."

Insects that feed upon animal tissue are more limited in their supply of food. Decomposing animal matter is a spot selected for the larvæ of the blue meat-fly.

The different kinds of solitary wasps store up their provision in order that it may be ready for the larvæ. Other insects pass their entire existence inside their carnal food.

¹ Malay Archipelago, p. 365.

² Pop. Science Mo., Vol. XXVI, p. 695.

³ Hyatt: Insecta, p. 233.

⁴ Weismann on Heredity, p. 94.

Reaumur¹ experimented on the meat-fly by placing one in a vase with a piece of fresh meat. The irregular heaps of eggs at different places on the meat amounted to about 200 and were deposited in less than half a day. In less than twenty-four hours the larvæ hatched and began their work of burrowing into their food.

Loeb² made some studies on the attraction of the fly to particular kinds of meat. He came to the conclusion that the guiding influences are tropic in effect, and the excitation is caused by the effluvia of the particular kind of meat. The fly turns toward this larder from a cause not unlike the moth flying into the flame.

Living tissue as a dwelling place for animals, especially under the head of parasitism, has attracted no small amount of attention. It represents a kind of animal world within itself. Cobbold³ regards the entozoa collectively as forming a special fauna, whose "territory is the wide-spread domain of the interior of the bodies of man and animals." Parasitism in general is attended by degeneration. The structure of the body while in its early stage may represent a higher place in nature and a more complex organism, but their quiescent manner of life permits the atrophy of unused organs. The food is easily obtained and it is often in a form of ready assimilation. The only class of parasites to be considered in this study are those in which the young at least are parasitic. An example of this class, frequently observed is the Ichneumon fly. The imago of this species has one object in life and that is to find some larva on which to deposit her eggs. Thomson⁴ mentions one that was observed to remain under water twelve hours, adopting a new medium for living and using her wings for oars, in search of some particular larval form. Another species⁵ (Black Thalessa) bores into the hard wood to deposit her egg in the burrow of the Tremex. With no mark to guide the human eye she locates the spot where her long ovipositor may penetrate the burrow of the larva and is thus able to carry on her species. So general is the warfare carried on by the Ichneumon family that no less than thirty-five species direct their attack on one of the Bombyx moths. The female of the Scolea,⁶ another of the Hymenoptera, penetrates into the ground in August or September in search of the larvæ of the Cetonia. When a suitable larva is found she stings it suffi-

¹ Figuiet : The Insect World, p. 76.

² Physiology of the Brain, pp. 186-188.

³ Parasites, p. 2.

⁴ Studies in Animal Life, p. 109.

⁵ Hodge: Nature Study and Life, p. 247.

⁶ Van Beneden : Animal Parasitism and Messmates, p. 165.

ciently to paralyze it, but not severely enough to kill, and deposits her eggs on the ventral surface. As soon as the larva is hatched it penetrates into its larder and gradually consumes it until only the skin of the empty *Cetonia* remains. The Bot-fly is another example of larval parasitism. "Guided by a marvellous instinct," says Figuiet,¹ "the female *Oestrus* generally places her eggs on those parts of the horse's body which can be most easily touched with the tongue, that is, at the inner part of the knees, on the shoulders, and rarely on the outer part of the mane." A further refinement is carried out by some insects to the extent of making the egg itself a larder. Insect parasitism is most favored by the minute size of the animal. The short duration of life of the adult tends to confine its destructive influence chiefly to that of larval forms.

The finely adapted ovipositor is no small vantage favoring the safety of young. In the struggle for existence the egg must be so placed that the helpless young will find the proper food at the exact time, and oftentimes it is of consequence at what place the young begin work on their larder. It is also significant that the ovipositor is often associated with the organ of defence, as though the fatal blow had something to do with the placing of the egg. Among the Hymenoptera the ovipositor is transformed into the sting. In the Saw-flies² it is used for cutting holes in the leaves, in which the eggs are deposited. In the Horntail³ it is a borer attached near the middle of the lower side of the abdomen and "consists of a long, pointed implement encased in horny sheaths." In the Ichneumon (*Thalessa astrata*) it is a long borer and it is protected by two sheaths which unite to form a tube. It is used by the grasshopper to scoop out the hole in the hard ground in which the female lays her cluster of eggs. A somewhat different adaptation is made by the weevil in using its stiff proboscis for boring. Many instances might be given, in each case of which there is an almost perfect adjustment of the ovipositor to the mode of life of the species. Through the process of natural selection the delicacy of the arrangement of this instrument has to a certain extent taken the place of care by the adult insect. Generation after generation have been produced and the structural development has reached such a stage that the nervous structure responds mechanically to the proper stimulus. Thomson⁴ says if we wish to explain insect life we must think back over the development of the species. It is quite possible if we had the steps of development much of the mystery would disappear.

¹The Insect World, p. 60.

²Hyatt: Insecta, p. 231.

³*Ibid.*, p. 233.

⁴Studies of Animal Life, p. 108.

Traces of Interest in Eggs. In the previous section the object has been to present the simplest forms of interest in the welfare of progeny. In the lower forms of life the process of egg-laying can be little less than a reflex in response to favorable environment. No doubt the first traces of the care of eggs is the result of a structural arrangement and as such has gradually been developed in response to its need. The female Cyclops¹ carries her eggs in an external pair of ova-sacs. The female lobster is provided with two leaf-like swimmerets to which the eggs are attached. During the breeding season these swimmerets are covered with a sticky substance which glues the eggs fast until they hatch. Espinas in his studies of animals has noted that the first care on the part of the parent is the female. She alone exercises this, where it is present among the crustacea and insects. While care by the male begins among the fishes and can be traced to a varying degree through the orders of amphibia and birds. Among the Siluroid² family of fishes the female Aspredo carries the eggs in the soft integument on the lower part of the body.

At the time of propagation the integuments of the lower side of the trunk assume a soft and spongy texture. After the eggs have been deposited by lying over them she attaches them to her and presses them into the soft parts. When the eggs have hatched the abdomen becomes smooth again. For another member of the same family of fishes, the Solenostoma, the ventral fins coalesce with the soft integument and form a pouch for carrying the eggs. Long filaments line the inner side of this sack as a further precaution for the retention of the eggs. ³ Interest in the welfare of the eggs is much more frequent in the male than the female among fishes, and the line of protection is generally some method of carrying them. Among the pipe⁴ fish, the Siphonostoma, the cutaneous folds of the tail form a broad pouch; for the Doryichthys dilated parts of the abdomen form a groove; for the Nerophis the integument of the abdomen is softened in the male and serves for attachment; for the Hippocampus, a sack at the base of the tail encloses the eggs.

In some species of Arius⁵ the eggs are carried in the pharynx. Among amphibia there are similar adaptations. The ova is placed by the male on the back of the female Surinam toad, where the softened integument forms a receptacle. The male,⁶ Alytes obstetricans carries the eggs entwined about his

¹ Nicholson: Manual of Zoölogy, p. 340.

² Günther: The Study of Fishes, p. 160.

³ Günther: *Ibid.*, p. 160.

⁴ Parker: Mammalian Descent, p. 85-86.

⁵ Geddes and Thomson: Evolution of Sex, p. 255. ⁶ *Ibid.*, p. 87.

hind legs and retreats to a burrow for safety, coming out at night in search of food. He may even give his unborn wards a bath occasionally to ensure their safe hatching. Near the time when the young tadpoles come forth he betakes himself to the water. A part of Boulenger's¹ Summary will shorten detailed examples: Eggs are carried by parents:

A—by male. 1, round the legs; *Alytes*. 2, in vocal sacks; *Rhinoderma*.

B—by female. 1, attached to belly; *Rhacophorus reticulatus*. 2, attached to back; *Pipa*. 3, in "dorsal" pouch; different species of *Nototrema*.

In his discussion as to the origin of care on the part of the male, Espinas thinks that it is a widening out of the interest displayed by the female; and for the fishes he sums it up by saying that: "The father² feels an interest in the fertilized eggs because he regards them as a part of his own body; he cares for them because he knows that they are alive." The latter statement however might be questioned. Interest in the welfare of the ova is expressed in other ways. The male stickleback watches carefully over his nest, and keeps the water in gentle motion for a fortnight. The least disturbance brings him madly at the intruder.

The alligator lies in close proximity to the place she has deposited her eggs. The incubating fowl shifts the position of her eggs in the nest. Moisture is borne on the feathers to furnish the necessary dampness. The cuckoo³ carries her eggs in her bill and places them in nests that otherwise are not available for the process of ovipositing. It may also be possible that she selects those nests whose environments are in harmony with the color of the egg.

The wagtail⁴ has been known to remove its eggs to a different position when disturbed. Brehm asserts that an American nightjar, when disturbed, transported her eggs one after another to a more secure place.

What shall we call this interest in the egg? Is it love? If it is not it is the basis for it. Whether we call it love or not, it represents an industry that is so vital among intermediate forms of life, that they will often sacrifice their own life in defence of their treasure.

Evolution of the Nest. Nest-building represents an adjustment of life to environment for the better care and protection of progeny, and oftentimes the nest offers a means of protection for the parent. It represents also an extrasomatic state where-

¹ Ann. Nat. Hist., XVII, p. 463.

² Die Thierischen Gesellschaften, p. 393.

³ Poulton: The Colors of Animals, p. 66.

⁴ Nicols: Zoölogical Notes, p. 217.

by external substances are utilized as a protection for the period of infancy. The first approach to it is perhaps found in the burrowing instincts of certain marine forms, and, like some of the other anomalies of this lower fauna, the burrow is constructed for the concealment of the mature individual. Some of the marine annelids burrow for protection. The common earth-worm finds its home in a burrow. Among the mollusks,¹ the marine snail (*Helix saxicava*) bores into the rocks for places of safety, using, it is thought, its gastric juice to dissolve the particles of stone. Other mollusks, as the *Pholas*, *Saxicava*, *Razor Shell*, etc., have similar habits. Many of the crustaceans have peculiar instincts for concealing themselves in different ways, as though realizing their helpless condition. The land crabs are notable for their burrowing habits to secure places of safety.

Burrows for homes. Burrows in wood and in the earth, by land animals, are more properly retreats in the sense of houses. They represent places of safety for the adult, and are fitted out with nests for the young. Perhaps one of the extreme necessities for the burrow, in the case of many animals, is to afford a safe place during the hibernating period. A few of the reptiles and the tortoises burrow for this purpose.

The ants and the termites, in comparison to their size, are the most extensive burrowers. According to McCook² the first act of the fertilized queen is to go apart and found a new formicary. In doing this she does not cease her work until she has excavated a gallery from two to six inches in depth. Then comes the duty of rearing and providing for the first brood of workers, and it is probable that her share of the work of gathering food and excavating does not cease until the family is well increased in numbers. The excavation is soon enlarged into a net-work of winding tunnels. Forel³ and Espinas,⁴ and others in their studies of ants have noted that the great number of tunnels and that the irregularity of the entire structure is due to the perfect freedom of each ant to work out its own plan. Only after a second ant has caught the plan of the first, does it assist, and others join in the work. The persistent patient worker may succeed, after many fights for supremacy, in winning others to its plan and lend shape to a part of the work. Each one starting independently—often destroying what others have done—is the key to their labyrinthian home.

¹ Wood: *Homes Without Hands*, pp. 114-128.

² *Agricultural Ants of Texas*, p. 99.

³ *The Social Life of Ants*, *Int. Monthly*, May, 1902.

⁴ *Die Thierischen Gesellschaften*, p. 371.

Moggridge¹ placed some Barbara ants in a glass jar in the evening, the next morning there were ten openings in the soil. He says, "It seems to me that the ants displayed extraordinary intelligence in having thus at a moment's notice devised a plan by which the superabundant number of workers could be employed at one time without coming in one another's way. These numerous and funnel-shaped entrances admitted of the simultaneous descent and ascent of large numbers of ants and the work progressed with proportionate rapidity. After a few days only three entrances and eventually only one remained open." In their work imitation is manifest and it is thought that they are able to profit by experience to a certain extent. They are able to adapt themselves to new circumstances and the ability to choose seems to be manifested at times. The larvæ are cared for by the young ants, and their social nature no doubt to a great extent depends on the care and treatment during this period of helplessness.

Closely related to the ants in habits, and scarcely less remarkable for their wonderful burrows, are the termites. These live in societies similar to the ants and like some of them are divided into castes or classes. The two principal classes are the workers and soldiers. Grassi² thinks that the workers are individuals whose development is arrested. They resemble the young, their sexual organs remain undeveloped, and other organs, as the eye, are only partly developed. While there may be two classes, workers and soldiers, they are not differentiated so much in their instincts although there are modifications of structure. Food, or the mode of feeding, he thinks is what distinguishes the anatomical structure of the winged forms, soldiers and workers.

Among the mammals the mole is an extensive burrower. At some central point, leading to this by several underground paths, it constructs its nest. The hamster has a special apartment set off for the storing of grains for food. Most deep burrows have two or more entrances. These are valuable for ventilation and may be used for escape in case of danger. Among social animals, as the prairie-dog or Vizcacha, the individual burrows form a small village, and to a certain extent, regularity is observed in constructing them. For most mammals, the burrow in the tree, the retreat in the crevice of the rock, the lair under the shelter of the cliff, etc.; wherever the fixed abode may be; these places are fitted out with a soft lining of some kind for the comfort of the resident, and usually in addition soft nest material is provided when the young are brought forth.

¹ Harvesting Ants and Trap-Door Spiders, p. 44.

² Cambridge Nat. Hist., Vol. VII, p. 376.

Among insects the trap-door spider finds a similar retreat. The young animal or insect that finds its home in such surrounding seems instinctively to take up its work to construct such an abode.

Ingersoll¹ speaks of a young badger reared in confinement when allowed freedom would burrow for hours. The gnawing of rodents is familiar. Moggridge² mentions the burrowing habits of the young trap-door spider, and says: "That so young and weak a creature should be able to excavate a tube in the earth many times its own length and knows how to make a perfect miniature of the nest of the parents, seems to be a fact which has scarcely a parallel in nature."

Burrows Especially for the Young. The burrowing habits of insects and animals have led to special adaptations of jaws, beaks and claws. The mandibles of some of the beetles, the teeth of the rodents, the strong front legs and claws of the mole or badger, all indicate special adaptations that have developed along lines of vantage.

After the quiescent stage of summer the female *Scarabaeus* beetle³ enlarges its burrow and collects a food-mass to the extent of a moderate sized apple in preparation for its young. The material is so arranged that the egg may be deposited on the softest and most edible part of the food. As a further precaution, for the first meal, a small mass of more nutritious and partly digested food is placed near where the egg is to be laid. After ovipositing the burrow is sealed up.

The mother lives to rear a second generation during the summer. Some of the solitary wasps, on the contrary, construct well provisioned burrows for the young they do not live to see. These have been delightfully described by Peckham.⁴ The *Urinaria* is one of the interesting of the nesting wasps. After the female has dug a little burrow about an inch in depth she enlarges a little chamber. When it has been provisioned and the egg deposited it is closed with two or more pellets of dirt, and as a means of concealment more dirt is kicked over it.

The *Ammophila* is said even to use a stone to pound down the dirt in her burrow. Most of the solitary wasps place the egg on some particular spot of the larder; the *Sphex* placing it on the ventral side of the captured cricket. According to Peckham⁵ the adherence to a general style of nests is dependent on instinct, but individual difference and experience leads them to depart more or less from the type.

¹ Wild Neighbors, p. 144.

² Harvesting Ants and Trap-door Spiders, p. 126.

³ Sharp: Camb. Nat. Hist., Vol. VI, p. 197.

⁴ Solitary wasps.

⁵ *Ibid.*, p. 233.

Some of the birds, although perhaps less adapted to constructing underground habitations, find burrows suitable for their nests. The Kingfisher¹ is a common example. At the end of a short tunnel in the river bank it enlarges a chamber, and on the fish bones scattered therein for a nest, brings up its young. The sand martin² is a small bird constructing a similar burrow. Along the high sand banks, bordering the smaller streams, these small burrows may be numerous. They are worked in by the bird, using her beak, for a distance of about two and a half feet. In this sheltered retreat the nest is built and the young are brought up in safety, the position chosen is often difficult to approach.

One or two instances may be noted of burrowers in wood. Many insects, especially in their larval state find their protection here. The carpenter bee³ (*Xylocopa*) hollows out galleries in worm eaten wood, and constructs a series of cells in the tunnel. The cells are stored with food for the larva, and sealed. When they reach a certain degree of maturity they pass out of the burrows in succession, by boring through the partition separating the cells.

No small number of birds construct tunnels in wood for their nests. When the female Toucan has begun to incubate she is fastened up by the male. A hole large enough for feeding is left and here she remains, fed by the male bird, until the young are almost mature. Such care on the part of the parents is believed to have arisen from the pilfering habits of monkeys and serpents. As a general rule the burrow is a safe retreat, and marks a very great advance in protecting the offspring.

Nests constructed of plastic materials. In attempting to classify the constructive activities of animals no sharp and fast lines can be observed. The moulding of the nest from some pliable material represents an advance in the line of invention. The placing of things together for a definite end is one step, but when a definite arrangement and shape is to be accomplished with these materials the advance is still greater. Whether the female carries a psychic model as a part of her dowry, whether it is the result of experience, or whether it is merely a reflex are questions that have been debated in this connection. Bethe⁴ thinks it can all be explained on the ground of reflex action. Darwin⁵ observed that the construction of cells by bees seemed to be "a sort of balance struck between many bees all instinctively standing at the same distance

¹ Wood: *Homes Without Hands*, p. 79.

² *Ibid.*, p. 75.

³ Figuiet: *The Insect World*, p. 367.

⁴ Pfüger's *Archives*, Vol. LXX, pp. 100, *seq.*

⁵ *Origin of Species*, p. 225.

from each other, all trying to sweep equal spheres." Maeterlinck¹ in his charming description of the bee says: "Their common sense has never been known to fail them; they have never, at a loss of definite decision, erected at haphazard structures of a wild heterogeneous nature. Though you place the swarm in a sphere, a cube or a pyramid, in an oval or polygonal basket, you will find on visiting the bees a few days later, that if this strange assembly of little independent intellects has accepted the new abode, they will at once, and unhesitatingly and unanimously have known how to select the most favorable, often humanely speaking the only possible spot in this absurd habitation."

One of the Myriopods² (*Julus terrestris*) when about to lay her eggs constructs a nest out of a mortar that she mixes. After burrowing down a short distance in the earth, she begins to form small pellets by moistening the bits of earth with the fluid from her salivary glands. "She works up these bits of earth with her jaws and front legs." When they are of convenient size and shape she places them together. The completed nest is shaped like a hollow sphere, the inside being smooth while the outside is rough. The nest is about the size of a small nut. She lays from 60 to 100 eggs through the opening left at the top and then she seals the little chamber with moistened earth and leaves them to their fate.

The Pelopæus, one of the solitary wasps, moulds the soft earth into a series of cells with her mandibles. In these she stores up spiders as food for her larvæ.

It was thought by Faber that the stored up prey had been paralyzed by a sting in some particular ganglion, but Peckham noticed that about as many of them were dead as alive. Many instances might be cited, especially among solitary wasps, of insects, moulding as it were, these cradles for the young. The honey bee moulds its cells of wax secreted in special glands, and the common wasp (*Vespa*) manufactures a kind of *papier-maché* by mixing the fibers of partly decayed wood with a salivary secretion. According to Hudson³ the Ovenbird of South America constructs a dome shaped nest. In the autumn, when the ground is moist, the bird is busily engaged gathering bits of mortar; these are cemented together, often with hairs, and when the nest is completed it is a foot or more in diameter. A partition is placed in it back of which is a softly lined nest. In general, moulding is one of the skillful arts of animal life, and since it represents a labor for the offspring it reflects another line of adaptation. The adaptation

¹ The Life of the Bee, p. 141.

² Sinclair: Camb. Nat. Hist., Vol. V, p. 38.

³ Naturalist of La Plata, p. 243.

is the building of something to encase the helpless young during the period of weakness.

Nests constructed of loose material. The simplest forms of this kind of labor may be observed among the amphibia. The female alligator¹ piles up some sticks and leaves near the bank of the stream. When the eggs have been deposited in this heap she lies in watch near by. The eggs are covered slightly but are incubated by the sun's rays. One class of birds, the Megapodia have a similar habit. The brush turkey² of Australia, for example, by tracing a circle of considerable radius, collects together a large heap of materials. In the work of building the male takes the initiative; when the eggs are laid he regulates the temperature of the fermenting mass by uncovering them during the day, to secure the heat of the sun's rays, and at night, again, scratches some material over them. When the young emerge they are able to care for themselves.

Excepting the four genera, comprising the megapodia, birds exert more or less care of incubating and feeding the young. In fact the uniformity is greater, in this respect, than in any of the other classes of vertebrates. Some classification is usually made in studies of their nesting habits. The division selected by Sutherland³ will serve for this treatment. He divides them into three groups: first those of a low degree of intelligence, comprising the Ratitæ or running birds; a medium grade consisting of the lower half of the Carinatae or Keel-breasted birds; and a third grade of superior intelligence consisting of the upper half of the Carinatae, including the Passerines, birds of prey, etc.

Among those of the first class the ostrich,⁴ for example, merely digs a hole in the sand where the eggs are deposited. A large part of the duty of incubation falls to the lot of the male bird, and in most cases he looks after the care of the young. The rhea and cassowary have similar habits. The second class includes birds like the barnyard fowl, pheasant, quail; marine birds as the petrel, gannet, penguin, etc., and other birds exercising little care in nesting as the pigeon, snipe, woodcock, etc. These comprise a great number of the avifauna and represent an advance in the structure of the nest, using sticks and grasses or perhaps some mud for building, and lining it with some soft material and often with feathers.

¹ Clark: Habits and Embryology of the Amer. Alligator; Jour. of Morph., Vol. V, p. 187.

² Nicols: Zoölogical Notes, p. 288.

³ Sutherland: Origin and Growth of the Moral Instinct, Vol. I, p. 58.

⁴ Nicols: Zoölogical Notes, p. 348.

The third grade represents the highest class of bird life. Among these the male and female, usually, both take part in building the nest, and the male takes his share of incubating, and of feeding the young. In this group are found such birds as the orioles with their intricately woven nest, swinging from the end of some branch. The humming birds delicately conceal theirs on the side of some limb; the parrots may accept some burrow in a tree; the birds of prey build massive nests, usually in the tallest trees, or on some elevated inaccessible place; the sparrows and thrushes conceal theirs in the grasses or among the bushes.

In regard to the habits of concealment, Oswald¹ says: "Animals in a state of nature are endowed with certain protective instincts to a degree which might often tempt us to believe the existence of a sixth sense. The nest of a green-finch on a willow, or chestnut tree defies detection, unless you should happen to espy the bird in the act of feeding her young." The tanager never takes a bee-line to the nest, quails, plovers and others feign lameness to deceive the intruder.

Burroughs² observes that nearly all the song birds build low; "their cradle is not upon the tree-top." A line five feet from the ground would run above more than half of all birds' nests and one ten feet would include three-fourths of them. The third class, of the division, represents the beautiful architecture of bird life. Many of the song birds, and especially those that care most for their young, show their high degree of intelligence in the preparation they make for the stage of weakness and immaturity. As in mammalian life the period of helplessness varies widely among birds. This highest class, as if realizing this period, build stronger nests and usually have a special lining in them.

Birds' nests in general. Wallace³ was of the opinion that the young bird learned by observation and experience how to construct the nest. It has also been suggested⁴ that probably an old bird mates with a young one, and thus they carry on the nest characteristic of the species. Dixon⁵ noticed that some young chaffinches taken from England to New Zealand were at a loss how to build the traditional nest, and finally constructed nests similar to those of the hang-nests of that

¹ Zoölogical Sketches, pp. 97-100.

² Birds and Bees, p. 28.

³ Natural Selection, p. 107.

⁴ *Ibid.*, p. 108.

⁵ Nature, Vol. XXXI, p. 533. (Dixon has recently written a book setting forth all the evidence he can collect to prove that the young bird builds by observing others of his species.)

country. While no definite experimental work on this point has come under the observation of the writer; and a discussion of the question could not find place here; yet the evidence seems to be that the process has an intelligent basis to such an extent that it could hardly be classed as a reflex act.

As the environment changes with the progress of civilization, if it is not destructive of food, bird life is responsive. The nest is woven with new materials, Burroughs¹ speaks of the change in the habits of the chimney swallow. The chimney is now preferred for nesting to the hollow tree.

Audubon records that the gulls along the St. Lawrence,—within the memory of the settlers there at that time—became arboreal when their eggs were being destroyed by the fishermen.

The tooth-billed pigeons² of Samoa became arboreal when their species was imperiled by the introduction of domestic animals. These changes in the habits of bird life denote an intelligence that responds readily and adapts itself to changes in the environment. The voluntary adaptations of bird life present themselves to our notice far more frequently than those of insects or mammals. The settling and cultivation of thickly populated areas has presented a new field almost entirely for bird life, but where they find protecting influences and food they continue to rear their brood as faithfully and as contentedly beside the great factory as in the remote forest.

Incubation. Incubation, in its more perfect forms as found among birds, has grown up with the evolution of new types of life, and probably as a result of the protection of the eggs and a disposition to remain with them.

Among some of the limbless amphibia³ (*Ichthyophis glutinosa*) of tropical countries a simple process of incubation is found. The female digs a shallow nest near a stream of running water. When the eggs, about two dozen, are deposited the female coils around the entangled bunch to protect them. Among the reptiles⁴ several species of the python have been observed to coil around their eggs, and some other species have a similar habit. Birds present the most perfect adaptation for this process. The nest is constructed to fit the body; and while feathers serve more than one purpose for the bird, they seem to be specially suited for incubation. The skin is thin and the temperature of the body is probably the highest of animal life. Nicols⁵ observes that it is a regular hot-house

¹ Birds and Poets, p. 91.

² Sharp: Wonders of the Bird World, p. 49.

³ Gadow: Camb. Nat. Hist., Vol. VII, p. 91.

⁴ Origin and Growth of the Moral Instinct., Vol. I, p. 53.

⁵ Zoological Notes, p. 51.

process—a forcing to rapid development. The temperature has been noted to rise at this period. Espinas¹ notes that during the period of egg-laying the bird is in a general feverish condition. The seat of this being the “*brüt-plexus*.” He further suggests that the incubating period is one of rest that follows this stage of excitement. The temperature of the python² has been noted to rise several degrees during incubation. Whitman³ recognizes three philetic elements, which he thinks are rooted far back in preavian forms, in the incubating instinct. The first is the disposition to remain with or over the eggs, as is the case with certain mollusks and worms; second the disposition to protect them from enemies, as with the stickleback; third a periodicity that coincides with the recuperative stage.

The perfection to which it is developed in bird life is no doubt a concentration along more than one channel of development. A noteworthy fact is the part the male takes in incubation. This interest on the side of the male begins among the fishes. Among the highly specialized forms of birds the male takes his share of the work of incubation. The ostrich in this respect may be considered as highly specialized. Incubation as a process of external development represents the growth of interest and care for the welfare of the ova, and the induction of the male to a part of the work represents the tendency of this interest to become more and more intensive and extensive.

Special adaptations of the organism. When the ova is extruded, one of the simplest of useful developments is exhibited by glands, the viscid secretion of which moors the ova and keeps them in place. Some moths cover the eggs with fur from their own body, “which,⁴ in the case of certain of the Eggers (*Lasis campidæ*), seems to have a special supply for the purpose.”

The Janthina,⁵ a reptile, swims to the surface of the water, and by a peculiar bending of its body enfolds air bubbles, these are held together by a secreted slime forming a raft, to these the eggs are fastened and held suspended in the water.

The spider has all the material for constructing the delicate cradle for its eggs, and plenty left to spread a large net for capturing food.

Emerton⁶ describes the formation of the egg cocoon. The female (*Drassus*) spins a little web across her nest, and drops

¹ Die Thierischen Gesellschaften.

² Sutherland: *op. cit.*, p. 51.

³ Biological Lectures, 1898, p. 324.

⁴ Sharp: Camb. Nat. Hist., Vol. VI, p. 322.

⁵ Schneider: Die Thierische Wille, p. 174.

⁶ The Structure and Habits of Spiders, p. 99.

the eggs on it. These are mixed with a liquid and "are discharged in one or two drops of jelly." After the eggs are laid the spider covers them with silk, drawing the threads over them from one side to the other, and fastening them to the edges of the web below. When the covering is complete she bites off the thread, that holds the cocoon to the nest and finishes off the edges with her jaws." Romanes¹ has offered an explanation as to the origin of the web-building structure, and thinks it has been carried over, or at least is a concomitant of certain larval forms. That its first use was that of locomotion or cocoon spinning as it is used by some caterpillars for descending from heights and others for spinning the cocoon. He says: "It is easy to see how if there were any original tendency to secrete a viscid substance—this might be utilized in descending from low elevations (as certain kinds of slugs use their viscid slime as threads to let themselves from low branches); and so we can understand how natural selection might thus have the material supplied" to develop even spinnerets.

Other instances might be given of secretions, of a physiological basis, arising as the period of procreation approaches; as that of the "supra-salivation" of certain swifts (forming edible birds' nests) and that of the male stickleback. The latter² according to Möbius weaves together his nest with special catabolic elements, in the form of mucous arising from the pressure of the enlarged testes on the kidneys, at the period of sex excitement. The viscid secretion with which the paradise fish of India glues together the air bubbles for a nest may have a similar basis.

If the ova, instead of being extruded when it is ripe, hatches within the oviduct of the parent the chances of destruction, compared with any external position it may have, is lessened. How such a process could have arisen might be explained from the habits of certain oviparous reptiles. A constrictor³ kept in confinement gave birth to a family of living young. The explanation being that the eggs were retained, one by one, near the cloacal aperture until the young emerged. The retention was perhaps induced by finding no suitable place to deposit them. This represents the first stages of one of the great economic processes of nature. Its maximum perfection is found in the complex intra-uterine development of the human race. The oviduct as a depository for unripe ova is common among some fishes (180 species according to Suther-

¹ Animal Intelligence, p. 208.

² Geddes and Thomson: *The Evolution of Sex*, p. 251.

³ Nicols: *Zoölogical Notes*, p. 27.

land);¹ and to a lesser extent among the amphibia as a whole, while about one-half of the reptiles are viviparous.

The marsupial represents an imperfect stage, yet a great advance. The young are brought forth at the completion of their ovarian development and placed by the mother in an external pouch. The lacteal food is forced into their mouths by special muscles surrounding the mammae. The soft fur-lined pouch affords a portable nest for the young. Among the mammals above the marsupials the ova is supplied with little food and upon hatching a union is established between the parent and offspring by means of the foetal membranes of the latter. Through the various modifications of these membranes nourishment is drawn from the parent until the expulsion of the young. Hertwig² thinks that the mammalia "have descended from animals which possessed large eggs with abundant yolk, which were oviparous," and in which consequently the embryonic membrane were developed in the same way as in the eggs of reptiles and birds. Mammals higher than the marsupials are generally divided into two classes as regards the intra-uterine development. This is based on the degree of complexity with which the embryo is united to the walls of the uterus. The lower class of mammalia, the non-deciduate placentalia, according to Landois and Sterling,³ possess only chorionic villi supplied by the umbilical vessels, which project into the depressions of the uterine mucous membrane, and from which they are pulled out at birth" (*e. g.*, pachydermata, cetacea, solidungula, camelidae). In the ruminants the villi are arranged in groups which grow into the uterine mucous membrane. Among the deciduata the union between the chorionic villi and the uterine mucous membrane is so firm that the uterine part of the placenta is separated with the foetus at birth.

This mode of development leading to the formation of the womb represents a constructive process on the part of the female for the young, but destructive in its general effects on the parent. The sacrifice of her body for the food and shelter of the young. Among some insects the sacrifice is even greater if less perfect in its general completeness. The female scale insect extrudes her eggs and the dried shell of her body forms the covering and protection for them. The cochineal insect becoming full of eggs dies, and thus protects her offspring, encased within her body. So important is species and so great is the struggle for survival that every superfluous element is sacrificed, and only the highest possible economy fulfills the

¹ Origin and Growth of the Moral Instinct, Vol. I, p. 36.

² Embryology, p. 222.

³ Text-Book of Human Physiology, p. 876.

requirements of nature. Such an advance is that along the line of viviparous development. With the life of the female goes food and shelter for the young, and among the highest mammals and man an intelligent care whose influence in moulding the nature of the young according to that of the species makes up one of the great forces of life.

The house as a dwelling. It is thought¹ not improbable that the first steps in architecture were shelters or shed-like constructions for the protection of the sacred fire. That public, and private, sacred and profane architecture, have alike sprung from these rude beginnings, which only after a time men dared to inhabit. This theory of the beginning of any kind of artificial shelters antedates the testimony of the remains of the primitive cave-dweller. The troglodyte was content with the cave, or, later scooped out the soft stone along the banks of the Marne Valley to resemble caves. Some² think the Eskimo huts to be the representatives of these old cave-huts. The Adaman³ Islander may still be seen to scoop out his bed in the sand under cliffs. Houssay⁴ arranges the dwellings of animals in three sets; (a) those which are hollowed out in the earth or in wood; (b) those which are constructed of light materials often woven together; and (c) those which are built of clay or similar material. We may compare these to the caves, wigwams, and buildings in which men find their homes.

The second class are the homes of the nomadic tribes. The tent or wigwam is a temporary house, and is taken along from one place to another when in search of food. This arrangement is especially characteristic of most Indian tribes. Some tribes, not included in this classification, as the Bushmen,⁵ live in crevices among rocks, and in South America⁶ the naked Puris make shelters or sloping screens of large palm leaves. The Botocudos stick the large palm leaves in the ground and draw the tops together. Australians set up a line of leaf boughs to break the wind for the night.

Such habitations approximate that of the higher apes. The Orang prepares himself a sort of nest; "little⁷ boughs and leaves are drawn together round the selected spot and bent crosswise over one another, while to make the bed soft, great leaves of ferns, of orchids, etc., are laid over them. 'The rude hut' says Sir James Brooke, 'which they are stated to build

¹ Reclus. Enc. Brit. Fire, p. 230.

² Starr: Some First Steps in Human Progress, p. 150.

³ Tyler: Anthropology, p. 229.

⁴ Thomson: The Study of Animal Life, p. 121.

⁵ *Ibid.*, p. 151.

⁶ Tyler: Anthropology, p. 231.

⁷ Huxley: Man's Place in Nature: Essays, p. 47.

in the trees, would be more properly called a seat or nest, for it has no roof or cover of any sort. The facility with which they form this nest is curious, and I had an opportunity of seeing a wounded female weave the branches together and seat herself within a minute.'''

Haberlandt¹ thinks that primitive man prepared this shelter principally for the purposes of sleep. Civilized man has controlled this according to his work, but for the savage the need of sleep was great.

The nature and the structure of the dwelling is dependent on the environment, and is generally suggested by it. The pile-dwellings which were prevalent at times in different parts of Europe were in fact rude castles for defence.

Mason² has recognized eighteen sections of America that are so distinguished as to give rise to as many kinds of habitations. The arctic area has given rise to underground igloos of earth on timbers or whalebone, snow huts and summer tents; Athapascan region to conical bark lodges; the Algonquin region to conical and cylindrical lodges of skin or bark; the Southern United States to huts of cane; plains of the West to skin lodges in circles; the North Pacific to communal barracks; Vancouver Island to communal houses; Interior Basin to shelters; California and Oregon to insignificant shelters; Pueblo region to differently constructed pueblos; Middle America to thatched and daubed huts and cut stone buildings; Littoral and Insular Americas to thatched huts; Cordilleras of South America to fortified villages and thatched huts; Andean Atlantic slope to thatched wooden houses; Eastern Brazil to immense huts and shelters; Central South America to open shelters, palm huts and roofs; Argentine and Patagonia to skin tolderias or awnings; Fuegians to miserable huts of wattle covered with grass.

Among the cliff-dwellers the desire for defense was the chief motive of the dwelling. It is thought³ that the structure of these habitations bear within themselves the record of a change from the nomadic to the sedentary condition of living and that their terraced structures was suggested by the shape of the cliff.

The Beehive houses, according to Lubbock,⁴ date from the stone age. Among the negroes of Africa they are so much used that they are recognized as characteristic of that country and people. They are found in other warm countries, as among

¹ Ethnology, p. 27.

² Smith Report, 1895; Influence of Environment on Human Industries, pp. 656-661.

³ Peet: Amer. Antiqua., Vol. XXI, p. 318.

⁴ Pre-Historic Times, p. 57.

the Indians of California and the natives of the Philippines. The structure of the African huts is varied. They may be of straw, sticks, leaves, matting, says Starr,¹ "of one room or of many, large or small; crude or wonderfully artistic and carefully made. They may be permanent constructions to be occupied for years or temporary shelters for a single night; they may consist of frame work made of light poles over which are thrown mats or sheets of various materials and which after using can be taken apart, packed away and transported."

The work of constructing the shelter has generally fallen to the lot of the woman. Among the Indians the wigwam was made and put up by the women.

The women² of the Adaman Islands erect the shelter. The Malayan and Polynesian houses are built by the joint work of both sexes. The same is true for some of the negroes, the men doing the heavy work. The Eskimo snow hut is built by the men. Among the Zuni³ Indians the women regard any repairs as their part of the labor. When the house is to be erected the men lay the stone foundation and set in place the logs for the support of the roof, and do most of the heavy work, the women do the plastering.

The general idea, most common among savage races in regard to the division of labor, is that the function of the husband is that of a food-getter, and it is his duty to protect the family. That of the wife is to produce offspring. In the growth of the home woman has been instrumental in its enlargement, a true evolution from within outward. Mason⁴ observes that we are indebted to her for the oven, the chimney, and the chimney corner, the kitchen, the dining-room, the family room and the separate bed-chamber. This growth, as completed, approximates the house of civilized races.

The development of architecture has kept pace with the progress of industry in general. As man gradually emancipated himself from the struggle for mere subsistence, changed his nomadic life to the sedentary, leisure and freedom were found for the erection of better dwellings.

But far back beyond the first dwelling, when the mother erected the first shelter for her babe, began the development of sentiment, the widening out of this first narrow stream found expression even in the shelter for the young. The love for the child became wide and strong enough to include everything that was for the child's welfare.

The crude shelter came to have an element of beauty even in

¹ Some First Steps in Human Progress, p. 151.

² Mason: Woman's Share in Primitive Culture, p. 152.

³ Peet: American Antiquarian, Vol. XXI, p. 38.

⁴ Woman's Share in Primitive Culture, p. 235.

its structure and house building passed over into architecture, a history of which marks the growth of love and is a record of man's appreciation of the beautiful.

The relative importance attached to the house depends to a great extent on the climate, like the use of clothing, when absolute necessity is the test, inventive genius is equal to the emergency. The house of civilized man is characterized by symmetry of parts, and is generally considered a reflection of the state of culture of the people. Expression in architecture has found its widest vent on the side of religious emotion, and the house of worship—the abode of the gods,—has called forth the greatest effort to beautify and enlarge the religious ideas of man.

Comfort of Young. Among animals, besides the carefully prepared nest, no further provision is made for the comfort of the young. If the mother of the young ape¹ dies the offspring is adopted by some other member of the group. They are also said to express very great solicitude for their young as they carry them about with them. The fowl broods over her young and warms them from the heat of her own body. Many of the higher animals will remove their offspring on the approach of danger, and may conceal them in some place of safety. With man, a part of the labor is to prepare for the comfort of the offspring, and this is kept up until the period of helplessness is passed. One of the first provisions of comfort is that of clothing. Tyler² says that among the rudest tribes, even in hot districts, something is generally worn either from ideas of decency or for ornament. In such countries its use is so closely connected with that of ornament that it is thought to have arisen from some manner of decorating the body. In colder countries it becomes a necessity, and especially for the babe. A provision more general, and associated with that of dress, is that of the cradle. It is the separate bed set apart for the babe.

Ploss³ says that in general it is an apparatus for protection and concealment.

Mason⁴ sums up the uses of the cradle among the American aborigines as follows: "(1) It is a mere nest for the helpless infant.

"(2) It is a bed so constructed and manipulated as to enable the child to sleep either in a vertical or a horizontal position.

"(3) It is a vehicle in which the child is to be transported,

¹ Brehm: Mammals, p. 6.

² Anthropology, p. 236.

³ Das Kleine Kind, p. 67.

⁴ Smithsonian Report, 1887; Cradles of the Amer. Aborig., pp. 161-212.

chiefly on the mother's back by means of a strap over the forehead, but frequently dangling like a bundle at the saddle bow. This function of course always modifies the structure of the cradle, and indeed may have determined its very existence among nomadic tribes.

"(4) It is indeed a cradle to be hung upon the limbs to rock, answering literally to the nursery rhyme:

Rock-a-bye baby upon the tree top,
When the wind blows the cradle will rock,
When the bough bends the cradle will fall
Down will come baby, and cradle, and all.

"(5) It is also a playhouse and baby jumper. On many, nearly all, specimens may be seen dangling objects to evoke the senses, foot rests by means of which the little one may exercise its legs, besides other conveniences anticipatory of the child's needs.

"(6) The last set of functions to which the frame is devoted are those relating to what we may call the graduation of infancy, when the papoose crawls out of its chrysalis little by little, and then abandons it altogether. The child is next seen standing partly on the mother's cincture and partly hanging to her neck or resting like a pig in a poke within the folds of her blanket."

What was the primitive form of the cradle?

Ploss¹ thinks that there are two different varieties that may be pointed out as original types. One is the round basket, perhaps of wicker, and the other is the hammock cradle. Many people possess only the first form others the second while some have both. The nomadic tribes—given over to the hunt or chase—or tending flocks, have only sacks or pockets, as the Hottentots, for example. The Brazilian² Indians place the new-born child in a bed of cotton material, or a hanging cradle, and it is hung up in the open air. The Dyaks³ of Borneo hang the child up in a mat. The hanging⁴ mat is used among the Russian peasants, in Trans-Caucasia, Asia Minor, to Persia. Among the Persians there is, sometimes, two posts set up for the reception of the swinging cradle. Some other people that use the hanging cradle are some of the North American Indian tribes; some tribes of Africa; Armenians, and some Slavic peoples.

The varieties of cradle in use among the Indian tribes are widely diverse. The cradle board or frame beautifully illus-

¹ Das Kleine Kind, p. 72.

² *Ibid.*, p. 73.

³ *Ibid.*, p. 74.

⁴ *Ibid.*, p. 76.

trates Bastian's study of "great areas" says Mason,¹ in that it is the child of geography and of meteorology, "In the frozen North the Eskimo mother carries her infant in the hood of her parke whenever it is necessary to take it abroad. If she used a board or frame the child would perish with the cold." Then we have the southern limit for the frame as northern Mexico. The Eskimo has an enlarged hood for the child. The birch bark cradle is found among some Alaskan and Cape Breton tribes, "the² trowel-shaped cradle of the Oregon coast; the wicker cradle of the Hupas; the Klamth cradle of wicker and rushes; the Pomo cradle of willow rods and wicker work, with rounded portion for the child to sit in; the Mohave cradle, with ladder frame, having a bed of shredded bark for the child to lie upon; the Yaqui cradle of canes, with soft bosses for pillows; the Nez Percé cradle-board with buckskin sides, and the Sahaptian, Ute, and Kootenay cradles which resemble it; the Moki cradle-frame of coarse wicker with an awning of dressed buckskin; the rude Comanche cradle made of a single stiff piece of black-bear skin; the Blackfoot cradle of lattice-work and leather; the shoe-shaped Sioux cradle, richly adorned with colored bead-work; the Iroquois cradle (now somewhat modernized), with 'the back carved in flowers and birds and painted blue, red, green and yellow.' " The cradles of the North American Indians are thus somewhat summed up by Dr. Chamberlain. The significant feature of the cradle, especially among peoples above the nomadic state, is its adaptation for a swinging or rocking motion. The sensation of motion has a soothing effect on the tender skin of the babe, and the motion of the cradle tends to shift the pressure to different parts of the body and thus lessen the feeling of pressure. The "sensation of motion is a pleasure-giving sensation" says Kline,³ "that has not been sufficiently analyzed." However it may point to lower levels of life, and be the expression of the long ages of struggle for existence, especially where life depended on swiftness, alertness and activity.

More recent people have connected with the cradle some curious superstitions. In Holland,⁴ rocking an empty cradle is thought to be injurious to the infant and a prognostic of its death. In Sweden, it is thought to make the child noisy and given to crying if the empty cradle is rocked. In Durham and Yorkshire it is ominous of another claimant for that place.

The Sioux woman carries her empty cradle, or keeps it in

¹ Report, Nat'l Museum, 1887, p. 162.

² Chamberlain: *The Child and Childhood in Folkthought*, p. 123.

³ *Migratory Impulse*, *Amer. Jour. Psy.*, Vol. X, p. 62.

⁴ Henderson: *Folk-Lore of the Northern Countries*, p. 19.

sight with some image in it to keep green her memory for the lost child.

In Germany,¹ there are many places at which a golden cradle is supposed to be hidden in the earth. At Schildthurm, a silver cradle was placed in the church to which unfruitful women came and rocked with the hope that they might be blessed with children.

The use of fire in the home. No one thing has marked off the human home from that of the animal more than the use of fire. The earliest remains of their dwellings show traces of its use. The cave dwelling, the kitchen midden, and the lake-dwellings have traces of the charred remains of their early food-getting habits and preparation. In fact primitive man comes to us thus armed for the cold climate and thus prepared to face new dangers and enemies. It served him as one of his chief weapons to overcome the mammoth that dared attack him. When no weapon would pierce the tough skins of the dangerous beast then the fire brand was used to frighten it away. Few peoples do not know how to produce it and none of the races or tribes² are without its use.

The aptitude of primitive man to myth and tradition to weave into his life the things most closely associated with him has made it a god, and wrapped its history in the strangest myths. It becomes for the low savage, almost a vital principle and its virtue transforms it into something mysteriously pure. It is no doubt associated with the sun above and the volcanic action below. The Parsees³ of India still holding on to the old Persian religion are worshippers of fire. In times past the Brahmans, Ghebers, Peruvians, Hindoos, and Romans, among many others, have either worshipped it or given it a place in their religion. Both in time and space the custom has been widespread,—finding place among the Chaldees, Hebrews, Greeks, Romans, Peruvians, and Mexicans, either in their religious or funeral customs.⁴

The Zend Avesta forbids putting anything unclean into the fire and no indecent act is to be committed before it.

In Albania⁵ it is an unpardonable offence to spit in the fire.

Heraclitus in his attempt to find the abiding substance declared that the world was an "ever-living fire" and that fire was the essence of all things. There have been many strange myths as to its origin. The Australians⁶ say that a selfish

¹ Ploss: *Das Kleine Kind*, p. 102.

² Tyler: *Early Hist. of Mankind*, p. 235.

³ Deniker: *The Races of Man*, p. 219.

⁴ Joly: *Early History of Fire*, *Pop. Science Mon.*, Vol. IX, p. 17.

⁵ Reclus. *Enc. Brit.*, *Fire*, p. 230.

⁶ Joly: *op. cit.*, p. 21.

little bandicoot owned the first firebrand, and that it was gotten from him only after a council of war had been held by the other animals. It was then handed over to man. The Peruvians¹ say that the sun,—the wife of the moon—fell down to the earth once, and was helped up again by an Indian, the second time it fell down it set the forest on fire.

The New Zealanders² trace the origin of fire through Mafinke,—an old blind woman who lives in the lower regions. It was only after she had been threatened with death would she share her treasure. Among these people "no fire is allowed to be kindled at night in the houses of the people all the year round. It is sacred to the god, and so after sundown they sit and chat in the dark." With the Kaffirs every religious ceremony must be performed in front of a fire. "In the Rig Veda³ the crackling of the blazing twigs is regarded as the speech of the gods, just as it is to-day in Borneo." The Legend of Prometheus, according to Tyler,⁴ has a close connection with the old Brahmin *pramantha*; i. e., the spindle for making fire, and the symbols used for it are identical with those for reproduction.

The Roman temple Vesta⁵ had no other goddess for worship except the vestal fire that was kept burning. If this by chance was extinguished all business ceased. The connection between heaven and earth had been broken.

Survivals of fire worship are to be found in the "new fire" ceremonials. Brinton⁶ says "we have but to enter a church of the Roman communion on the morning of Holy Saturday to witness the impressive ceremonies with which the creation of the 'new fire' is to this day celebrated in our midst."

The instances given show the great rôle that fire worship has played among primitive peoples. When it was brought into the home it was like the advent of the gods, and the early primitive hearth was a place of worship. It was a living thing and no doubt the resemblance of the dying embers to the ebbing spark of life wrapped up its life more completely in that spirit world, which plays so great a part in savage welfare.

The hearth or family fireside is a tie that binds the members together. "All Greece confederated making Delphi its central hearth, and the islands congregated around Delos, whence the new fire was fetched every year."

The prytaneum was the common hearth for the city. On

¹ Tyler: Prim. Cult., p. 288.

² Tyler: Early Hist. of Mankind, p. 231.

³ Brinton: Relig. of Prim. Peoples, p. 142.

⁴ Anthropology, p. 396.

⁵ Reclus. Enc. Brit., Vol. IX, p. 229.

⁶ Religion of Prim. Peoples, p. 142.

this there burned a perpetual fire. It was sacred to Hestia, the personified goddess of the hearth.¹

The family tie, linking one member to another, grows up around the fireside. It is the meeting place where tradition and custom are passed along from generation to generation. The savage here related his encounter with this animal and his narrow escape from that one; all their traits and peculiarities were given crude anthropomorphic significance. Old traditions of monsters; the story of the brave warrior, legends of animals, spirits, etc., were here related. In this way the fireside was the school.

-So much of primitive, savage, and even civilized life is spent around the fireside, that some accumulated effect, if such can happen, has certainly grown up with its associations, and we prefer to be around the open fireside. Dr. Hall² collected data in regard to fear of fire, and in his article says, "Traces of the charms of these old associations are abundant in child-life as other returns show. Just to idly gaze at fire now starts dreamy reveries, veined through which are traces of very primeval yet earnest thinking. It stimulates memory and story. . . . The very play of form and color half hypnotizes and autonomizes the mind, and as we see solid matter volatilize to smoke there seems some mysterious power within and behind it all."

Food. The conformation of the digestive system and the dental arrangement in man indicate that at some period he was frugivorous. War and migration tended to widen his habitat, and from necessity he became omnivorous in his diet. With the advent of the use of fire in the preparation of food came a great advance. Tribes that cook food are more enterprising and energetic than eaters of raw meat.

Cooking lessens the amount of food required and is a saving of energy. It has further enlarged man's dietary to include foods either poisonous or unpalatable in their raw state.

Roasting or broiling is the one process that is most universal. The Adaman³ Islanders keep the fire smouldering in hollow trees so that they only have to clear away the ashes to broil their fish or pigs. The Tasmanians⁴ neither skinned nor disemboweled animals before cooking, but placed them whole on the fire. The ant hills were cleaned out by some of the African⁵ tribes and a fire built within the pit, when this was removed the rhinoceros joints were roasted in the temporary oven. Slight variations among other tribes, as those of Madagas-

¹ Joly: Enc. Brit., Vol. IX, p. 230.

² Study of Fears, *Am. Journal of Psy.*, Vol. VIII, p. 181.

³ Tyler: Early History of Mankind, p. 261.

⁴ Mathew: Eaglehawk and Crow, p. 28.

⁵ *Ibid.*

car, South Sea Islands and tribes of Polynesia, were to place hot stones on the food to be roasted.

The Chinese legend, as set forth by Charles Lamb, is that roasting of meat came about by the accidental burning of a building. In order to have roast pig it was necessary to burn down the building. The Assiniboin Indians practice stone boiling by digging a shallow pit and lining it with the hide of some animal which they have slain, as the buffalo. Water and the food to be boiled is placed in this and then heated stones are dropped in.

The different methods of cooking by different races show steps of advancement.

Starr¹ thinks the steps in the growth of cookery have been: first, "roasting or parching; then came baking; then broiling." Parching of grains is common among most peoples.

A few races yet in their degradation, and especially in times of severe need, will resort to the lowest forms of life for food.

The Australians² will make a meal on fish, bats, frogs, lizards, snakes, or worms.

The Malayan³ tribes, the Bushmen, Pigmies of Africa, and the Fijians are degraded in their diet.

With domestication of animals comes an advance in the quality and permanence of the food supply. With agriculture the permanence of the habitation. The savage who depends on an irregular food supply can never comprehend regularity, and, says Buckles,⁴ his irregularity "would prevent him from suspecting anything like method in the arrangement of nature, nor could his mind even conceive the existence of those general principles which govern the order of events."

Regularity in work has given rise to regularity in meal time. According to Pavy,⁵ "Carnivorous animals apparently thrive best when fed at long intervals; herbivorous, when they are constantly eating; man being omnivorous, his food should be taken at intervals of much less duration than the carnivora."

One of the first advances in the evolution of the meal-time is found in the communal home.

There one meal is prepared each day for the household. Such was found among the Iroquois,⁶ and the Spaniards found an elaborate dinner prepared each day in Montezuma's Castle.

¹Some First Steps in Human Progress, p. 32.

²*Ibid*, p. 31.

³Hutchinson: Living Races.

⁴Influence of Food on Civ., N. A. Review, Vol. CXXXV, p. 548.

⁵A Treatise on Food and Dietetics, p. 510.

⁶Morgan: Houses and House Life of Amer. Aborigines, p. 101.

The change from the apparent freedom of the savage to that of the fixed rules and customs of society is somewhat difficult.

Morgan¹ mentions a Seneca chief, whose daughter had been educated in the usages of civilized life, who desired the usual food constantly prepared ready to offer any person who entered their house, "saying that he did not wish to see the custom of their forefathers laid aside," although they had adopted the regular meals of civilized society.

In the effort to get food, the water is looked upon as the place of least effort. The lake dwellers built their huts over the water, and could count on its supply for food. And for many tribes it is a natural reservoir. Morgan² thought that the principal reliance of the American aborigines was on fish. That "they were in reality from first to last, nations of fishermen, who eked out their scanty sustenance with game, natural fruits, and bread roots, and afterwards—a portion of them—with the products of a limited agriculture."

The Athapascans and Ojibways subsisted almost entirely on a fish diet while the Aztecs and Thascalans subsisted chiefly on vegetable food. The other tribes were intermediary in their diet between these extremes.

He further divided mankind into five³ classes depending on their foods. The lowest class are those who have a natural subsistence of fruits and roots and are restricted to a more or less definite habitat. The second class are those subsisting on fish, the third class by means of cultivation have a farinaceous subsistence; the fourth class are those subsisting on meat and milk, and the fifth class are those having an unlimited subsistence through field agriculture.

These are in fact steps marking the subsistence of many of the existing peoples.

The influence of food on the individual in the different stages has been often noticed, and the best labor and results are gained by having the best and greatest variety of food. The dwarfed stature of the Bushmen, goes well with his degraded habits, and the food of the Eskimo leaves a smaller margin for growth after the heat for an arctic climate is set free.

Some foods have been esteemed especially virtuous. Honey has been regarded as having great virtue because of its near relationship to the nectar of the gods. Dr. Chamberlain⁴ has collected some information in regard to the food of children and its relations to the gods.

Among the Friesians and Germanic tribes the child could

¹ *Op. cit.*, p. 46.

² Beach: Indian Miscellany, p. 164.

³ Ancient Society, p. 19.

⁴ The Child and Childhood in Folk-thought, pp. 145-151.

be exposed, or put to death, so long as it had not taken food, "but as soon as the infant had drunk milk and eaten honey he could not be put to death by his parents." In Iceland, in ancient times, "the food of the suckling was sweetened by honey."

Among the Germans, Greeks, Slavs, Hindoos, etc., milk and honey have been esteemed the food of the gods. These were the first foods for the child and we have the first step in the external relationship of the child-life to the god-life beyond.

When fire came into the home as a living deity that watched over and assisted the family, its use to prepare food made it the chief center around which the family gathered, and around it they partook of their meals, after having first offered a sacrifice to it. "The hearth," says Keary,¹ "was to each member of the household as it were an *umbilicus orbis*, or navel of the earth." But this holds true no less to-day for all peoples and classes. The strongest and most fundamental desire is that for food, and all civilized races instinctively look to the fireside as a sort of birthplace of food. The change from the state of natural subsistence to that of cooked food has been attended with no disaster to the race while, on the other hand, it has been the greatest of economic achievements,—the *sine qua non* for present civilization.

Some animals, as the ant, a few birds, the squirrel, the bee, have the art of preserving foods for winter; some, as the bear, and woodchuck, live through the winter upon the fat stored up, but the great majority of animal life keep up the ceaseless struggle for subsistence. The cheek pouches of squirrels, monkeys, gophers, mice, etc., are excellent adaptations for carrying food. The social stomach of the ant, as Forel² calls it, is another adaptation for storing and preserving food. It is also a factor that contributes to perfect their life for societies. In cold countries, insect-eating animals pass a quiescent state during the winter corresponding to the winter sleep of the insect, or in warm countries a period of aestivation.

Wesley Mills³ has made a study of hibernation among animals, and especially that of the American marmot. He divides the life of this animal into four periods; (1) "A period characterized by either drowsiness or sleep or profound torpor, lasting from about November to April. (2) A period of perfect wakefulness immediately following, during which the animal was emaciated, in poor coat, and with a general low vital

¹The Dawn of History, p. 145.

²The Social Life of Ants, Int. Monthly, May, 1902.

³Animal Intelligence, p. 83.

capital, lasting for some weeks. (3) A period of improving condition, with good health and a desire to get free, which latter was also noted in the preceding period. (4) A period of maximum weight and vigor with perfect coat and an abundance of fatty tissue." This may perhaps be taken as the maximum of the winter sleep among mammals; among the amphibia it is more profound; while some animals present a less profound sleep, grading off to a period of drowsiness during the coldest weather.

The dwelling place of man is usually a storehouse for food. Home and food have grown up together and either word has come to imply the other.

The effect of food. The over-fed plant has been observed to produce an abundance of foliage, but little fruit. Spencer¹ thought that among social insects the sex was determined by the degree of nutrition while the eggs were being formed, other differences in structure among them being determined by the character of the food during the larval stage.

Among different insects it has been noted that during the summer, when food is plentiful, a predominance of females is produced, but on the approach of autumn, when food is scarce, more males are produced. Yung's² experiments on tadpoles was to the effect that when they were left to themselves the proportion of females was about fifty-seven in a hundred. Of three broods tried, the first fed with beef, increased the number of females to seventy-eight in a hundred; the second fed with fish brought the percentage up to eighty-one females in a hundred, and the third, fed with the flesh of frogs, produced ninety-two females and eight males in a hundred.

Ploss first noted the relativity of the births, as to sex, in Europe, and observed that when the harvests were poor more boys were born than girls. On this basis, Schenk³ has endeavored to establish his theory of sex, believing that poverty of the harvest led to more of a meat diet, and that, therefore, is a factor for producing masculine offspring. He further believes that if he can control the diet for a period of three or four months previous to conception, he can control the sex. The economy of nature, in response to an over-abundance of food, would be an excess in the number of fertile females, tending to increase the number of that species to its food-limit.

Growth of the social instinct. The thread of love that kindled in the mother's breast of some low type of life widened in different directions, but first of all it was imparted to the offspring.

¹ Contemporary Review, Dec., 1893, p. 11.

² Geddes and Thomson: Evolution of Sex (quoted), p. 41-52.

³ Determination of Sex, p. 221.

It grew from generation to generation until self-hood was recognized in like type and sociability made possible. This social instinct, if we may so call it, is found among the lowest forms, and may even have had its birth in the animal colonies, as the polyp or coral. But many of the free swimming marine forms of the same species unite in great number for search of food. Bluefish, salmon, herring, shark, cod, etc., travel and live in shoals. Insects migrate in swarms, as the locust, or butterfly; or live in colonies, as termites, ants, or bees. Birds, as terns, sea gulls, penguins, swallows, quail, crows, buzzards are sociable, and those that migrate collect in large numbers; even different species associate at this time¹. Mammals, as deer, elephants, buffaloes, monkeys, live in herds; or horses, cattle, and sheep, in droves; or beavers and prairie-dogs in colonies. In fact, as Krapotkin² says, it is easier to name the exceptions among animals that do not live in associations of some kind than those that do. The cat tribe practically being the only exception. The teaching of Darwin was that "the struggle for existence" is inclusive and covers the whole field of animal life, activity and endeavor, and that associations of animals, of whatever kind, while they find pleasure in society and escape many dangers, is merely to carry on this warfare in a wider and a more perfect condition. But the fittest are also the most sociable animals, and sociability appears as the chief factor of evolution both directly by securing the well-being of the species while diminishing the waste of energy, and indirectly by favoring the growth of intelligence. Espinas, in his valuable contribution to the study of animal societies recognizes two kinds of social relations: (1) The organically connected colonies of animals, as the coral, (2) those associations whose origin is found in the desire for reproduction. The period of association varies in different animals, but for the higher vertebrates the existence of permanent bands and organizations becomes more frequent, and serve wider purposes.

Another condition of animal life now generally recognized by students of sociology is termed animal marriages. It represents the period that the male and the female of any one species live together. This may be for life as it is thought to be the case among some birds, as the bald eagle.³ Among other species of birds it is kept up for one or more seasons. Since most of the birds live in pairs, Snider⁴ recognizes in these unions the "first decisive instances of monogamy in nature." The mammals present less sharply defined traits for pairing

¹ Krapotkin: Nineteenth Century, Sept. and Oct., 1890.

² *Ibid.*

³ Audubon: Birds of America, Vols. I & II, p. 60.

⁴ Social Institutions, p. 124.

and many of them, while sociable, exhibit only a common interest in the welfare of the herd. They are for the most part, as the seal and many of the monkeys, polygamous. The higher apes and the gorilla, simang and orang-outang, show decided tendencies to live in pairs,¹ and to continue the family relation in bands after the young are matured.

The social nature of the animal, as thus briefly set forth, and his so-called marriage state, sets before us the basis for the social nature of man and the possibility of the permanence of the human marriage relations.

The social nature of the animal has found its supremacy in man, and the imperfect and irregular marital relations have found their permanence in the family. Marriage and family have grown up together, the permanency and the duration of the length of the union depending on the helplessness of the young, and the amount of care needed. No definite time, as the limit of the marital relations, could be adopted and no state of promiscuity as is now generally disregarded by recent writers, would be compatible for the proper care of offspring. The marriage relations is a growth from within outward, radiating ever about the one central point, the best preparation of the young to meet the requirements of the environment and to propagate the species.

Origin of marriage. Whatever may have been the form of primitive marriage is yet uncertain. Several of the older writers, as Morgan, Bachofen, and Lubbock, who made studies of primitive peoples, thought that a period of hetairism was the primitive state. But the prevailing opinion now, as shown by the works of Westermarck, Letourneau, Deniker and others, is that at no time was this custom prevalent to any great extent, and is not known to be practiced by any tribes² exclusively. The argument for this belief was based on the writings of Heroditus, Strabo, and Solinus, and an imperfect knowledge of the practices of primitive peoples.

Morgan³ recognized five stages of the family in his classificatory system of relationships. This was based on a study of the Iroquois, and the stages were supposed to represent the growth of the family. The first was that of the consanguine family, founded upon the intermarriage of brothers and sisters. The second was the Punalian family founded upon the intermarriage of several sisters with each other's husbands, in a group; or in general a group of men were conjointly married to a group of women. The third was the pairing family,

¹ Snider: *op. cit.*, p. 126.

² Brinton: *Religion of Prim. Peoples*, p. 201.

³ *Ancient Society*, p. 384.

founded upon the marriage between single pairs, but not exclusive, and continued during the pleasure of the parties. The fourth was the patriarchal family founded upon the marriage of one man with several wives and fifth the monogamian family or marriage between single pairs.

Bachofen¹ recognized; (1) a state of hetairism or promiscuity; (2) a matriarchate, the woman being the recognized head of the family; (3) a patriarchate, the father being the head of the family. For Sir John Lubbock,² the first state was that of communal marriage, the second was that of capture and the third was some form of exogamy.

The later writers, as Letourneau in his "Evolution of Marriage," recognizes polyandry as forming the lowest state. By capture and purchase there arose the monogamous; out of this also grew up polygamy. The highest form is that of monogamy. Westermarck³ in his exhaustive study of the family recognizes polygamy as the earliest condition of marriage; through modification this passed into the monogamous form. The second type was that of polyandry which, through various agencies, also passed to the monogamous form. The views of the older writers have become more or less discredited as more exact information of the history and life of savage peoples has been obtained. The growth of the affections and some knowledge of possession, especially in recent times of property values have tended more and more toward marking off the individual and defining his mode of living. The basis for the marriage relation Letourneau⁴ attributes to biological forces. "The institution of marriage," he says, "has no other object than the regulation of the sex unions." Others take a wider view and place on a more or less equal basis psychological, biological and social forces. Starcke's⁵ conclusions were that a man connects himself with a woman in order that she may work and keep house for him, since as he thinks there was an early division of labor between man and woman, and second, that they may obtain children. The desire for children that he may live on through them and that they may be a support for him.

The development of courtship even among animals has a sufficient history to show that many psychic elements find expression in display and arts of various kinds. The extremes which this has taken among some animals is a proof that winning on the part of the male and selecting on the part of the

¹ Das Mutterrecht.

² Origin of Civilization, Chap. III.

³ The History of Human Marriage.

⁴ The Evolution of Marriage, p. 3.

⁵ The Prim. Fam. in its Origin and Devel., p. 256.

female have been unconscious educating factors. Espinas¹ recognizes five kinds of intermediaries that are effective in sexual selection. They are: touch, smell, color and form; noise and tone; and play and motion. The mental effect of these play an important rôle among different animals. When all the factors are considered we cannot help but conclude that the psychic and social as well as the biological forces have all been important in the growth of marriage; the first two being the perfecting elements.

The Growth of Love. The female insect selects the place to deposit her eggs, the male, often insignificant yet necessary, may or may not attend her. The female fish selects the spot to deposit the spawn; this is true, with but a few exceptions, for the great body of fish life. Most nests are built by the female bird and only among the highest types does the male assist in the labor. Among mammals the female usually selects the site for the home. The female rabbit digs the little burrow in which her young are brought forth. Wherever the preparation for offspring is made the female takes the initiative. The human female, says Mason,² "more than all the rest created her home."

The females are smaller among many of the cephalopods³ and some of the cirripods. Most female annelids are larger and certain articulates. The queen bee, hornet, and wasp are larger. Female butterflies are also larger than the males. The female of many fishes are larger, as in the cyprinoids, and also among reptiles. In nearly all birds and among all higher vertebrates the male is larger. As to the nurture of the young animals in general, Mrs. Blackwell⁴ says, "no male of any species high or low is known to afford direct nutriment to the young—to first assimilate the food and then transfer it to the offspring," while the female always affords direct nurture. Women are considered less variable than men. They depart less from childhood in shape and disposition. Her thoughts are impelled by her feelings. Ellis⁵ has observed that in males generally "there is an organic variational tendency to diverge and to progress, while in woman there is an organic tendency to stability and conservatism involving a diminished individuality and variability." Woman is further characterized as anabolic, to store up a reserve for the future need of offspring; while man is catabolic. They are longer lived than men and

¹ Die Thierischen Gesellschaften, p. 270.

² Woman's Share in Prim. Culture, p. 234.

³ Delauney: Equality and Inequality in Sex, Pop. Science Mon., Vol. XX, pp. 184-192.

⁴ Sexes Throughout Nature, p. 29.

⁵ Man and Woman, p. 369.

more resistant to certain diseases, the variability¹ of man being accounted a sufficient basis for more marked pathological characteristics. Ellis² thinks that the longer life of woman marks the necessity for the care of the young.

Schäffle³ pointed out the mental differences of the sexes. He characterizes woman as attaching her interest to the special and the individual, to the curious and the beautiful isolated phenomena. "It is feminine to desire to occupy with the whole personality a restricted sphere and to work in it with the most intense affection." The chief difference between the sexes, he thinks, resides principally in the feelings.

These distinctions, as above noted, represent some of the characteristics of the female. In part they have been instrumental in the development of the mother. The growth of love is a long history. The lowest forms are totally indifferent to kind or offspring; the gradual growth of inclination to care for eggs, to place them, to protect them, to incubate them; or if viviparous the offspring may depart unnoticed by the mother. No opportunity is given for the slightest responsive spark in its life. The real attachment between mother and offspring begins in the animal series when the mother begins to supply food, whether consciously or not, directly to the offspring. In the process of evolution, the supplying of food, at times, and even in the life of a species, may have existed as a reflex act. But if this were so when the object of her labors were removed, the habit so peculiar to the organism of the mother would be broken, and if it were possible this would awaken consciousness, if not of the loss of progeny, at least to a change of habit. Given the spark of attachment between mother and offspring, the flame has widened as though it were a great vantage field—which it really is—in the evolutionary process. A factor so useful that it has constantly tended to reduce the number of progeny necessary to carry on the species. With greater exertion of the parent, and a longer period of care has come greater opportunity for the growth of the bond uniting mother and offspring. Not only food and protection come to be provided by the mother, but comfort in different ways. These represent enlargements of the bond of sympathy as emanating from the parent. They also provide a wider field of stimuli calling forth a like response in the offspring. So in general the growth of the bond of affection between parent and offspring has increased *pari passu* with the amount of attention exercised by the mother.

¹ Ellis: *Man and Woman*, p. 369.

² *Ibid.*, p. 384.

³ Small and Vincent: *Study of Sociology*, p. 180. (Summarized.)

The theme on which Drummond¹ wrote so beautifully was the evolution of the mother. The highest expression of which is found among civilized men. Characterized by patience, sympathy, carefulness, and devotion, she becomes the perfect "tutor of the affections."

The period of infancy was pointed out by Fisk² as having a wide meaning in the evolution of the race. He thinks that while this alone makes possible the education of the sentiment of love, it has also created man's social nature, and fits him for living in societies. A few instances will point out the significance of this period. The offspring of the ungulate or hoofed animal is able to walk almost as soon as born. The weasel or the badger³ are blind for a fortnight after birth and stay with the mother for two months or more.

According to Wallace⁴ the orang-outang attempts to walk at the age of about one month, and lifts itself up by holding to objects. Previous to this time it lies on its back, helpless, rolling from side to side. It tries to grasp but is scarcely able to guide its fingers. The babe, the most helpless of all young, begins to walk at from twelve to fifteen months, and needs at least eight years of care. The brain, according to Sharpley,⁵ on the average, weighs fourteen ounces, while the weight of the entire body of the infant on an average is six and one-half pounds. Yet with this proportion of one-seventh of the organism as brain weight the infant at birth is far behind the ungulate in the ability to even survive. The marsupial young are brought forth at a very immature stage, and the external development is completed in the pouch with which the mother is provided. The period of gestation for the herbivora is much longer than for the carnivora of equal weight. The gestation period for a wolverine⁶ and a sheep, of approximately the same weight are respectively 90 and 150 days, yet the lamb may be able to walk a few moments after birth, while the wolverine young are helpless. The significance of the nest becomes apparent. The longer period of gestation in the one case has developed the nervous system to such a stage that the instincts are ripe to assert themselves. The kangaroo transfers, as it were, its womb to the exterior part of its body. The undeveloped nervous system here completes its growth. For the mammal the nest serves a similar device; for man it is the home.

¹ *The Ascent of Man*, p. 267, *et seq.*

² *Cosmic Philosophy*, p. 343.

³ Sutherland: *Origin and Growth of the Moral Instinct*, Vol. I, p. 90.

⁴ *Ibid.*, p. 96.

⁵ *Ibid.*, p. 82.

⁶ *Malay Archipelago*, p. 35.

The period of helplessness is the opportunity for the mother. Her fund of feeling finds expression in a thousand ways. Scott¹ thinks that care for the young "grows out of the care of the individual for its own body, and that the offspring which has been for a time a portion of herself, is defended by the mother with a fervor which arises almost directly from the interest of self-preservation."

Among some animals care may be prompted by a desire to get rid of the uneasiness caused by overburdened udders. "The unrelieved pressure in the mammary gland of a mother animal robbed of her young," says Geddes and Thomson, "is no doubt largely concerned in prompting her to adopt young ones not her own."

In regard to care, and especially the period of infancy, Fisk² noted that in general the "duration of the feelings which insures protection of the offspring is determined by the duration of the infancy."

Responsive expressions are peculiar to childhood and especially among girls. Children's games and plays are manifestations full of the growing affections. Dr. Chamberlain³ has summarized some of the playthings among different peoples. This shows how widely dolls are used by children. The "Study of Dolls," by Dr. Hall,⁴ brings to light an unfolding process in child-life. The food they are supposed to need; the names for them; the need of sleep; the sickness, the death, the funeral, the burial; these may be taken as expressions of growing sentiment that have developed in response to the mother's care.

Kline⁵ in his study of migration cites the following as some of the factors making for love of home, as shown by questionnaire returns.

(1) F., 19. "I think that the order is mother first, father and brother equally. I love to think of my surroundings at home in this order: the sitting-room, the two maples in the yard, the brook and the surrounding hills."

(2) F., 20. "The elements in my own love of home are first my father, then sister, brothers, the house, and familiar spots on the farm."

(3) F., 17. ". . . Father and mother and next my sister and brother . . . then the home feeling which I have but which I cannot possibly explain."

Forecast. The number of offspring has constantly shown a decrease with the growth of love and care for them. But this

¹Sex and Art., *Amer. Jour. Psy.*, Vol. VIII, p. 171.

²Cosmic Philosophy, p. 343.

³The Child in Folk-thought, p. 216.

⁴*Ped. Sem.*, Vol. IV, pp. 129-175.

⁵*Amer. Jour. of Psy.*, Vol. X, p. 66.

has not ceased with the progress of civilization. Indian women have rarely more than four or five children. Westermarck¹ thinks this holds good not only for the North American Indians, but, upon the whole, for a great many uncivilized peoples. Among civilized peoples increased responsibilities imposed by high standards of living cause a decrease in the number. In the United States,² for the year 1850, the average size of the family was 5.94 persons to each dwelling in the country, while for 1890, there were 5.45 persons. This shows a decrease for the entire country, but for the urban population alone the decrease is much more marked than for the rural population.

The country in which the decrease is most noticeable is France³, where the ideal family consists of two children. The desire of the parents is that the marriage dowry may be sufficient for comfortable living. This is especially true for the agricultural class, the family consisting of a boy and a girl, the income from the respective dowries received will not be reduced below that of the parent.

Among infants the death rate is very great, more than ten per cent. of them dying before they are one year of age. Among savage races this is especially large. Pava has noted the inadaptability of the child for digestion. The alimentary canal is short, and no saliva is present. The food of the mother and the newly born child should be the best. This is often poor among savage races, and the hardships are often extreme. The improved condition of home life has had its effect in bringing better sanitary conditions. Wright⁴ says "It must be conceded that if a decrease in infant mortality is the result of more concentrated care upon the few, then the smaller family is more effective in society than a large one neglected. Certain it is that the average duration of human life has been increased at least ten per cent. under modern civilization."

Of the three elements of the mind, feeling and sympathy are primordial in their development. These are the characteristics of motherhood. Modern civilization, with the great store of tradition and learning, impose new conditions on the individual. Cognition tends to be supreme and feeling the virtue of femininity is subordinated. The conditions of true motherhood are imperiled by the transition from the sphere of feeling and emotion to that of cognition. The question raised by Griggs⁵ is whether the biological basis of human existence is a sufficient

¹The History of Human Marriage, p. 491.

²Wright: Outlines of Sociology, p. 42.

³Demolin: Anglo-Saxon Superiority, p. 94.

⁴*Op. cit.*, p. 68.

⁵The New Humanism, p. 213.

foundation for the vast superstructure of life. Higher education of women brings this danger to the home.

Another danger that Bryce¹ thinks higher education brings for the home is individualism. That is the desire of each person to do what he or she pleases, to gratify his own or her own tastes, likings, and caprices; to lead a life which shall be uncontrolled by another's will. The nervous system grows more irritable, he thinks, and there is greater friction, and for this reason temper is a growing cause of menace.

Wake² notes, also, "that as a result of the development of the intellectual faculties which constitute the chief element in individuality, the desire to escape the cares of a family may lead to disinclination for marriage, if even there is not a repugnance to it." Carpenter³ in reflecting on the course of evolution and the voluntary sterility of certain classes of society women, remarks that "sometimes it seems possible that a new sex is on the make—like the feminine neuters of ants and bees—not adapted for child-bearing, but with a marvellous and perfect instinct for social service, indispensable for the maintenance of the common life."

In regard to society as a whole it tends more and more to the feminine type. The community of savage⁴ life approaches the masculine, selfish, unstable, variable. With no fixed abode they roam about from place to place, killing and destroying; warfare is their glory. Woman's influence comes to exert itself to a greater extent with the growth of civilization. Who can estimate the effect of the female teacher in the schools, in helping to civilize the race and in bringing to compromise the variable nature of man? It is like an extension of motherhood, throughout all the earlier years of life. In regard to the duration of life, Weismann's idea is to the effect that the increase in length is exactly proportional to the time which is demanded by the care of the young. With the development of civilization new conditions are imposed upon the young, these require a longer period for preparation and tend to increase the period of helplessness. Corresponding to this we should expect an increase in the length of life, which as above noted we find. If from this brief study of the conditions of home we should venture any forecast as to the course of the evolutionary process, the evidence would seem to indicate that whatever infinitely small changes are taking place in shaping the destiny of the race no small amount of this force lies along

¹ Studies in History and Jurisprudence, Vol. II, p. 463.

² Sociology—Brooklyn Ethical Assn., p. 69.

³ Love's Coming-of-Age, p. 67.

⁴ Morley: Life and Love, p. 200.

lines that tend to the care and comfort of the race. The influence of the mother is yet a great factor in progress.

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PEDAGOGY IN OUR COLLEGES AND UNIVERSITIES.

A. J. KINNAMAN.

In the year 1832-33 Dr. Gallaudet occupied a chair of Philosophy of Education in the University of the City of New York, now the University of New York. This undoubtedly was the first professorship of its kind in this country, if not in the world.¹ The chair appears to have been discontinued after one year. Brown University organized a "Department of Pedagogy" in 1850, which, however, was discontinued after a period of five years. A course of lectures on pedagogy was given in Michigan University in 1860 by Professor John Gregory. The course is said to have occupied several weeks and to have included: educational philosophy, the grades in education and the teaching art.² Again in 1870, Iowa University offered a course in pedagogy and conferred the degree of bachelor of didactics upon those who had completed a one year's advanced course in the elementary normal department and who had taught two years successfully. In 1873 Iowa University³ organized an advanced normal course open only to the academic seniors who intended to become teachers and to special students who might be qualified to be classed with them. Its "College of Normal Instruction" was opened in 1878, a sort of rudimentary, post-graduate professional school, granting the academic normal degree of bachelor in pedagogics. The work was conducted by Dr. N. S. Fellows, and included: history of education, national systems of education, practical educational topics, school economy and principles of education. Finally, Michigan University, in 1879, founded a "Chair of Science and Art of Teaching."^{4, 5} This course was extended over two semesters. Ten hours a week was devoted to it.

From this date to the present time the number of colleges and universities offering courses in pedagogy increases rapidly. In 1883-4 there were seven such institutions.⁶

¹Jerome Allen: Education of Teachers in the State of New York, p. 271.

²U. S. Com. Rep., 1879, p. lxxx.

³Education, Mar., 1881.

⁴U. S. Com. Rep. of Ed. I, 299.

⁴U. S. Com. Rep., 1883-4, p. cxv.

⁶U. S. Com. Rep., 1883-4, p. cxiii, and F. W. Atkinson, Professional Preparation of Secondary Teachers in the United States, Leipsig, 1893, p. 38.

There were, in 1892-3, 83; in 1893-4, 174; in 1896-7, 220; in 1898-9, 244. According to the commissioners report for 1898-9 there are still, however, 250 colleges and universities in which no courses are given in pedagogy.

This movement has not come without its struggles and opposition. Its various disciplines were so imperfectly developed and organized that it could not command respect and recognition equal to that of other subjects. In a period of rapid scientific advance it had no body of scientific investigation back of it, and its advocates were dealing in platitudes. Most books on the subject consisted of "barren details of organization and method, and the description of the inferior teachers and schools." Such work was new and untried in these institutions. But few men cared to undertake to teach it, and others deliberately opposed. There were wanting young men who would devote themselves to pedagogy. Courses of study were lacking in general culture value. The pedagogical courses were too short to command respect. Often special degrees were given for too limited a term of student work. The occasions for opposition were numerous and grave, but the cause was genuine and sure to succeed.

One of the earliest references under the term *pedagogy* in our Commissioner's Report appears in the publication for 1874, where there is given a report from the Allgemeine Schulzeitung, of Jena, listing the lectures on education (pedagogics) at the German Universities during the winter of 1874-5. A similar report is given for 1877. Here it is said (p. lxxiv): "The science and art of teaching is surely a subject so important that it may well be included in the curricula of our universities and colleges." After mentioning the chair at Iowa State University, its example is recommended as worthy of imitation. There is added: "the attempt to establish chairs of didactics has been embarrassed by the historic customs of our older colleges. Again, "it is not too much to hope that another result will be the more careful consideration of the philosophy of education and adequate provision for the round and thorough teaching of it."

About this time Prof. N. S. Fellows published two articles in the Educational Weekly of Chicago urging the establishment of chairs of didactics in our colleges and universities. His reason for such statements are: It will (1) greatly assist the graduates who, from their superior culture, will occupy chief places and become teachers of teachers.

(2) A reflex benefit will accrue to the colleges themselves, in the greater success of their graduates and in improved methods of their own work.

(3) Professional educational literature will be improved.

(4) The development of a true science of education will be promoted.

(5) It will be a deserved recognition by the highest educational authorities of the value and need of professional training for teachers of every grade.

(6) Teaching will more justly merit the title of a profession.

(7) Higher institutions will become more closely united with our public school system.

(8) It will increase and widen the knowledge of ends and means of education among those who, though not teachers, will hold high official and social positions.

The next important reference occurs in the report for 1883-4, p. cxiii, where after naming the institutions having chairs of pedagogy, it is said that Johns Hopkins University has in various ways made its influence felt upon the teaching profession, and its work in this direction promises to be greatly extended through the lectureship of psychology which has been accepted by G. Stanley Hall, Ph. D. The lectures on education referred to were given on Saturdays, and were patronized largely by students from other departments. Lecturers from other departments were called in to discuss the teaching of their own subjects. The great difficulty was to find young men who would devote their time to the work. It was impossible to arouse interest enough even to have the subject elective as a minor.

On page 381 of the Commissioner's Report, for 1887-8 one paragraph is devoted to "Chairs of Pedagogy." "First in order among the demands for providing professional training of teachers, though not the most important, is a Chair of Pedagogy in the State University." McGrew recommends them as of inestimable value to the public schools. Heston, of the Pennsylvania State College, urges them for training competent superintendents and normal school professors; and James, of the University of Pennsylvania, for supplying teachers for our higher schools and colleges.

In the report of 1889-90, p. 1017, when there were about 70 institutions offering courses, it was said that the pedagogical courses had so few elements in common that it was difficult to generalize about them. "Some universities have complete courses in pedagogy, whether graduate or undergraduate, while others make it an elective study for juniors and seniors in the regular college courses." Again "some recognize that the person who intends to teach should have instruction in matters and in methods that the candidates for the degree in arts or sciences does not receive." Thus in 1889-90 we find an attempt "not to recognize education or pedagogy as a

science, as political economy or politics under the name of sociology has been recognized, but it is certainly placing pedagogy on the same footing as those subjects."

At that time it was possible to make two classes of universities with regard to the courses in pedagogy. (1), those, like Harvard, which emphasized special methods as in Latin and mathematics, and those which, like Clark, emphasized research work and the more general aspects of the science of education. Harvard, did, however, propose a course of more general character on "the history, theory and art of teaching." Lectures were given once or twice a week, and the student was required to write an essay or two and to observe schools. The course was devised especially for the benefit of teachers, but the general attitude of the university rather discouraged its pursuit.

Clark declared at that time that their work was primarily shaped to meet the special needs of two classes, one composed of those desiring to qualify themselves for professorships of pedagogy in universities, colleges or normal schools; the other class, composed of those who intend to become superintendents of state or city systems of education or wish to fit for other administrative positions. Its courses then included comparative pedagogy, social effects of higher education, the effect of the artificial or intellectual development of the child upon his natural or physical development and special pedagogy. There were, also, courses in neurology, experimental psychology, anthropology, practical ethics and philosophy.

Iowa was at this time giving three courses of one term each; history of education, educational sciences and systems, and school management and exemplifications of methods of instruction. Tennessee proclaimed her course to be beyond the normal course, and was one of the first to put forth a strong claim for the culture value of the work. Cornell, Columbia, and Princeton had courses or "quasi courses in pedagogy."

The school of Pedagogy in the University of the City of New York, now New York University, was organized about this time, 1890. The faculty holds the same relation to the university as the faculties of law, medicine and theology hold. The special plea is that the training of the teacher should be placed on the same level with the training required for other professions. They granted two degrees: Master of Pedagogy and Doctor of Pedagogy. The courses covered, (1) history of education, (2) psychology and ethics, (3) pedagogy, methods and school hygiene, (4) literature of pedagogy and æsthetics and (5) educational systems of other countries.

President Elliot in 1891 said, "The faculty of Harvard, in common with most teachers in England and the United States, feel but slight interest or confidence in what is ordina-

rily called pedagogy: but they believe that skillful teachers should be able to give some account of their methods for the benefit of those who are beginning to teach; or, in other words, that experienced teachers can advantageously convey to beginners some of the results of their experience. The faculty believe, however, that the work to be profitable, must be departmental; that the accomplished teacher of Latin must show how to teach Latin; the accomplished teacher of chemistry, how to teach chemistry, and so forth; or at least, that there must be separate teaching of the several methods applicable in the principal groups of subjects—language, history, science and mathematics.” Such a plan may be valuable for converting a faculty to a recognition of the value of courses in pedagogy, but it can never give the subject any adequate representation in any university, let alone a great institution like Harvard.

As has been said, then, we have at present 244 colleges and universities offering courses in pedagogy. Of these Clark University, alone, has established a department of higher pedagogy whose chief aim is research and contribution pedagogical literature by the Faculty and the men in attendance. The institutions offering the most extensive courses are Clark, Columbia, Chicago, California, New York, Illinois, Iowa, Cornell, Harvard, Leland Stanford, Jr., Michigan, Syracuse, Texas, Minnesota, and Toronto, Canada. Possibly a few others should come in this list and one or two should be omitted, but there is no hard and fast line of division. Besides these we have some twenty-five institutions offering less formal work, consisting usually of a few special lecture courses, and the conventional courses of regular instruction in the history, philosophy, science and art of education, pedagogy and hygiene, mostly described by blanket terms allowing a wide range of work. Some research work is done, and it differentiates itself from normal school work in the omission of all academic branches and in the absence of student teaching in a model school. It is quite impossible to describe the remaining 200. The work done in them ranges from the very poorest to the very best, but is always limited in extent, number of instructors, access to libraries and literature; and no attempts are made at research work.

Taking the more formal courses from the leading institutions they appear under a great variety of headings; but the topics almost invariably announced are: organization and management, school systems in various countries, history of education, school hygiene, psychology, educational reformers and educational classics. Other topics announced in these leading courses are: introduction to educational theories, ele-

ments of pedagogy, institutes of pedagogy, elementary pedagogy, history of educational thought, educational classics, educational aims, history of philosophy, character and its culture, æsthetics in education, sociology in relation to education, high school pedagogy, high school work, recent movements and problems, anthropology, biology and neurology, ethics, educational uses of domestic arts, nature study, adolescence, method of the teacher, method of the subject, art of education, evolution of educational theory, principles of education, educational theories, educational reformers, philosophy of education, educational foundations, practical pedagogy, and child study. The following have been proposed as general culture courses, from which students not intending to teach might elect: character and its culture, æsthetics in education, sociology in relation to education, Plato's Republic, Grecian education, famous men and their education, elements of great teachers, the pedagogy of Shakespeare, and the pedagogy of Jesus.

I have selected twenty-two colleges for classifying their instructors, the relations of their pedagogical work to the remainder of the work in the institutions and the degrees conferred. The institutions selected are, Minnesota, Michigan, New York, North Western, Cincinnati, Missouri, Toronto, Brown, Illinois, Syracuse, Ohio, Nebraska, Leland Stanford, Jr., Wisconsin, Chicago, Cornell, Clark, Harvard, Columbia, Iowa, California, and Indiana.

These institutions employ seventy-eight men as professors of pedagogy. When classified according to the degrees they hold, which is not a very good basis of classification, but is the best available, the following are the results: Ph. D. 39; LL. D. 4; A. M. 8; Paed. D. 3 and M. D., D. D., S. B., Ph. B. and L. L. B. one each, and nine not determined. Taking the department of Physics in the same institutions as a department fairly well organized and differentiated with which to compare, the following is the result: men employed 113; Degrees, LL. D. 1; Ph. D. 42; A. M. 17; A. B. 10; M. S. 5; B. S. 15; M. M. E. 2; Ph. B., C. E., B. M., E., M. E., Sc. D., M. Sc., and B. E. E. 1 each, and fourteen not determined. Thus, while a larger per cent. of the pedagogues (50%) have the Ph. D., the per cent. of physicists holding baccalaureate degrees is about ten per cent. greater.

In the twenty-two universities there is one School of Pedagogy on a par with the Schools of Medicine, Theology, etc.; ten departments of pedagogy; four called courses; five in which the course is a part of the department of Philosophy, and one a part of the Department of Psychology.

The credits given vary considerably. There are four which merely allow the student some credit for work done in peda-

gogy; sixteen allow the student to offer a major in the department, seven grant teachers' certificates when the student gets his degree, and two give certificates of study. As to degrees granted when the student majors in the department it appears that one gives Ph. D., two give Paed. D. and Paed. B., and twelve the A. B. The showing is by no means all that could be desired, but I believe it better than is generally supposed and that the indications are rather favorable, considering that the movement is yet new.

Early advocates for departments and chairs of pedagogy in our universities hoped that their establishment would result in an improvement in the quality of pedagogical literature. It is rather early to expect extensive permanent products, yet the research work done at Clark and published in the *Pedagogical Seminary*, now extended to eight volumes, is an innovation of inestimable value. No substantial history of education has resulted, having the broad culture value of our general history. Monroe's Source Book and Russell's Higher Schools in Germany are worthy of honorable mention. Some of Dr. Dewey's work, Bryan and Harter's Hierarchy of Habits and a few others may be traced more or less directly to the inspiration of schools of pedagogy. That there is a field here for research and historical investigation is established beyond doubt. That its disciplines have positive culture values, as proclaimed by Tennessee, is recognized as never before. That the character of the course should vary with the character and grade of the institution offering it I believe should be fully recognized. I believe that our greater institutions where research work is carried on in other departments, should offer facilities for research work in this department also. The minor institution can have enough illustrative research to enable the student to appreciate its methods, problems and results. In a few of our best institutions we need courses for graduate students only where research work and the development of a genuine literature shall be the predominant feature.

In a large range of institutions just below these few leading institutions the tendency seems to be to differentiate the department of pedagogy and to secure a state teacher's certificate for those who major in the department when the baccalaureate degree is taken. I believe these to be desiderati but that they are fraught with dangers to be guarded against carefully. In differentiating there is danger of losing the proper close contact with other and closely allied departments as philosophy, psychology, anthropology and biology. By the very nature of the case the proficient teacher of pedagogy must be conversant with what is to be taught, and complete differentiation is probably suicidal. As for certificates, whenever the

State is to grant them, it should require only a minimum amount of work but never specify just what is to be done. With the present rate of development of this department in our universities, boards can hardly meet often enough to prevent their injuring the work by limiting it, however good they may be.

The practice school it seems to me is quite out of the question, unless the course is to take the place of the work of the Normal School. But our experimental and observation schools are all but indispensable for the higher professional and research schools.

Despite opposition, misunderstanding, defective disciplines, poorly organized courses and instruction, the movement has grown marvellously in the last fifteen years. Nearly all of our larger institutions now have some kind of work in education or pedagogy. The increase in number of institutions offering such courses cannot be so rapid in the future. Improvement in the near future will probably lie (1) in the differentiation of the functions of the courses and methods for the normal schools, and for the colleges and universities, (2) in the establishment of model and experimental schools, (3) in the extension and the improvement of the existing courses, (4) in determining the relation of this department or line of work to the other courses and departments of the university, (5) in the preparation of specialists for the work, (6) in the improvement of the disciplines, by experimental and scientific investigations, and by collating and unifying the data already at hand, and (7) in demonstrating the high culture value of its disciplines.

CHRISTIANITY AND PHYSICAL CULTURE.¹

By G. STANLEY HALL.

Health means holiness or wholeness. The words healthy, holy, hale, heal, and whole all come from the same Anglo-Saxon root. Physiological psychology is now restoring this deep philosophy embedded in the words. In its light let us re-translate some Bible texts—worship the Lord in the beauty of healthfulness; healthfulness becometh Thy house O Lord; serve Him in healthfulness; preserve my soul for I am healthful; this is a healthful man of God; the healthful Scriptures, the healthful day, spirit, people, etc. This sums up the new hygiene in the blessed revival of which it is our privilege to live, and which is rescuing man's body from the still persistent traces of the old ascetic neglect. Ask with reverence, what shall it profit a man if he gain the whole world of wealth, knowledge and power, and lose his own health; or what shall we give in exchange for health? Without it, the mind tends to grow feeble; the will to be freaky; the heart to lose its courage; virtue to be exotic or a pale cellar plant; and the human brain, the very highest and most complex product of the great biologists in the world, the only mouthpiece of God through which alone he has revealed himself, to become anemic and languid. Jesus is the healer or whole maker, who came to purge the world of sin and disease and give us the soundest hearts and souls in the soundest bodies.

One of the best products of health is abounding joy or euphoria, such as we feel in the rapture of just being alive on a spring morning, when we overflow with the superfluous energy that makes the play spirit in the world purge away the primal curse of work and gives a buoyancy that no pain and affliction can entirely overwhelm. This holy or healthful joy is the end toward which creation strives and is the raw material out of which the special and lower pleasures of sense, of wealth, discovery, gratified ambition and art, are made. Educational and even religious systems are thus measured by the health, wholeness, and holiness they can produce.

Chief among the controllable means to health is wise muscle

¹Address before the International Meeting of the Y. M. C. A., Boston, 1901.

culture. By weight the adult human body is nearly one-half muscle. The muscles are the only organs of the will and are likely to share its strength or weakness. Muscles have done nearly all man's work in the world. They have tilled the soil, built cities, fought, written all the books, and spoken all the words. Through all the past man has been the striver and toiler. There is a sense in which all good conduct and morality may be defined as right muscle habits. More than this, just in proportion as muscles grow weak and flabby, the chasm between knowing and doing the right, in which so many men are lost, yawns wide and deep; and as they become tense and firm doing becomes—as F. W. Robertson was wont to say it should—the best organ of knowing. Rational muscle culture, therefore, for its moral effects, often for the young the very best possible means of resisting evil and establishing righteousness, is the gospel, I preach to-day, a gospel so reinforced by all the new knowledge we are now so rapidly gaining of man's body and his soul, that it is certain to become a dominant note in the pulpit itself, just in proportion as those whose vocation it is to save souls realize that they must study to know what the soul is.

But, alas! how much there is now in modern life that makes for decadence and degeneration of both muscle and health. The city, that great "biological furnace," a new and perhaps chief feature of our day, so contrasted with that of the country where alone man can be fully natural; sedentary life in office and school that favors attitudes of collapses; that reduces the action and even the volume of the lungs and stomach; that is so hard on the heart—itself only a muscle—and the blood vessels, the health of which is so all conditioning; the restriction of the eye, which normally roves freely far and near, to the monotonous zigzag of the printed page, and as the progressive increase of its defects are shown in the saddening statistics; the pallid, muddy or chlorotic complexions, stoop, decaying teeth, premature grayness and baldness; the great increase of nervous disorders; and added to all these, the use of machines which are now suddenly exempting human muscles from the strenuous life which developed them and to which they have been wonted for generations;—this is the situation. But this is not all. We are now coming to know the age of adolescence from the early teens into the early twenties, and we find that one of its chief features, when normal, is muscle growth. It is the age of nature's majority, when the young leave home and begin the great struggle for individual existence. Muscles should now grow both in size and power as never before or after. It is their nascent period of now or never, and should be sacred to their culture for the sake of will and virtue. It

is also the age when the strongest of all human passions develop, which exposes it to the greatest of all temptations to sin, and the chief preventative measure to sexual vice is now physical training.

Its neglect is never so dangerous. Careful research shows that the difference in the strength between the weakest and the strongest youth is twice as great in the later teens as in the earlier, and this difference is largely determined by use or disuse. Licentiousness almost immediately reduces strength in a surprising and measurable degree, whereas abundant physical exercise uses the available energy of the body in healthful ways, and reduces temptation in almost inverse ratio. Not only strength, but circulation or irrigation of the tissues with blood is most variable at this age and most dependent upon regimen. Without abundant exercise, the heart which should grow very rapidly in both size and power, remains both small and weak, as does the caliber of the great arteries.

Now physical achievements fire the heart of youth in a way which adults who have not experienced it, find it hard to appreciate. To be "great with hands and feet," an ideal which inspired Pindar who sung the achievements of the Greek athletes, brings just those fervors, calentures and enthusiasms, which are the chief need of youth. Youth must be intense; must tingle and glow; have excitement; stretch lungs, blood vessels, muscles to their greatest capacity by warming up and getting second breath for both mind and body, and this makes for righteousness, because it lessens the power of sin over body and soul.

I have thus stated the need and defined the goal, and now I am called in as an expert, sympathetic but outside enough of the movement to be impartial, to report on the past progress and present state of body training in these Associations. I find that since 1869, when the first gymnasium was opened in New York, over 475 equipped gymnasia, training more than 86,000 young men, have been established in the 610 city or large town associations of the country. Slowly and in the face of much early lack of appreciation and even prejudice and despite many obstacles, the new problems, some of them at first discouraging, have been one after another solved. Physical trainers, at first sometimes chosen from bad surroundings of circus and professionalism, have been trained; well-manned institutions established for this special purpose at Springfield and Chicago; summer sessions, camps and conferences held for further training of leaders; courses of study extended; methods of physical examination steadily improved; experts like Roberts and Gulick, known and honored leaders wherever physical training is studied, and more lately the athletic league of over

roo associations, to still further unify and perfect the work. Among all the marvellous advances of Christianity either within this magnificent organization or without it, in this land and century or any other lands and ages, the future historian of the church of Christ will place this movement of carrying the gospel to the body as one of the most epoch making.

The German Turner system, which sometimes brings 5,000 trained men in the field in this country, exercising in uniform under one command, has been one of the most potent allies of patriotism in the German Fatherland, and for nearly three generations has contributed to improve the bodies and increase the national strength under Jahn's inspiring motto, "only strong muscles can make men great and nations free." For two generations the Swedish system, less national, more specialized, scientific and governmental, has given heart and life to another great racial stock. The English method of play, sports and games expresses the brawn and brain of English life and is both cause and effect of much that is best in our mother country. We seek to combine the spontaneity of the Anglo-Saxon body cult; the science of the Swedish; and the love of country which inspired the Germans, but our loyalty is to a kingdom invisible, not made with hands. The watchword *frisch, frei, froelich, from*, shows the dimensions of this all-round movement. We are soldiers of Christ, strengthening our muscles not against a foreign foe, but against sin within and without us. We would bring in a higher kingdom of man, regenerate in body; make it more stalwart, persistent, enduring, taller, with better hearts, stomachs, nerves, and more resistful to man's great enemy—disease.

To one thing I exhort every man and woman who hears my voice. As you, and you, and you, are Christians, live up to the top of your condition; cultivate an appetite for food that is a physical conscience trained to point true to the pole of the needs of the body; train a little every day keeping well within the limits of your vitality and with careful adjustment to your power to recuperate from fatigue; consider your posture, carriage, bearing, and regimen; if you are young learn, if you can and have not, to run a little without initial embarrassment; work or play actively enough every day to draw away the blood from the centers of congestion; study dosage a little or the effects of the same exercises in large and small quantities; if you work with the brain, avoid exercises that involve spurtiness, close attention, or that throw the strain on the nerves. Remember that nowadays at forty, most men are either invalids or philosophers—invalids if they have done their work wrongly or are burned out with vice, individual or hereditary, and philosophers if they have had the rare insight

to learn to know themselves so as to keep completely well. It is said of the great thinker, Kant, that he prided himself more upon keeping his frail body alive till eighty, and getting so much work out of it, than upon writing all his volumes. Try these things yourselves faithfully, and you will begin to feel within you this new gospel of the body, the light of which is now being shed abroad in the world as never before.

Men are, happily, just now beginning to learn what a power can be brought to bear against the kingdom of evil in the world by right body keeping; how the body can be built up by patient attention; how we can develop the large fundamental muscles that move the great joints, and as it were lead the energy thus generated down and out to the finer muscles that move the face, vocal organs, fingers, and do the work of skill and precision in the world; how we can give rhythm and cadence to the whole soul life by well adjusted movements, and as it were, like some of the Bible heroes again dance before the Lord in worship; how curative of disease and corrective of deformity well prescribed gymnastics can be; how active muscle habits develop a love of nature and teach sentiment which is sometimes prone to go to waste in gush and vapid enthusiasms, to harness itself to do the work of the world; and what a sin and shame it is when our temples of the Holy Ghost are neglected and lapse to premature decay.

Finally, this is a world and age of achievement. Men are coming to be measured more and more not by what they know or even what they feel, important as that is, but by what they can do and actively accomplish in the world. Knowledge can never save individuals or nations. Subjective emotions are not enough. But there is one language and one only of complete manhood, and that is willed action, and it is to make our lives speak in this language and thus to make them historic that we train, what psychology now sees to be the chief power in man, the will, the only organs of which are muscles.

PRE-ESTABLISHED HARMONY.

A MID-SUMMER REVERY OF A PSYCHOLOGIST.

One raw cold day in January just before nightfall, Professor Hardipan, of Boston, was walking slowly and abstractedly from his laboratory to his lodgings, nearly a mile distant. He was a somewhat hard-headed, positivistic man, on the shady side of forty-five, who had already won a very prominent place in the scientific world. He was a psychologist of the empirical, experimental school, interested in human nature generally, and especially in everything that was exceptional and out of the way. He had frequented prisons, asylums for all sorts of defectives, was very fond of studying the ways of animals, somewhat bluff in his manner and perhaps a trifle crabbed in his disposition. He was an incorrigible old bachelor, a member of a club of plain speakers, devoted to roasting each other, and was past president of the *nil admirari* club. He had long ago eschewed society but had a rather strange foible of reading, thinking, and speculating about marriage and woman in general, and was widely read in all sorts of statistical, physiological and sociological literature bearing upon the subject. His friends in whose presence he occasionally vented his views about doubling man's rights and halving his duties feared he was almost in danger of becoming a woman hater, yet he was at bottom a good hearted man, a fast and true friend, and some of his blunt and *outré* notions were thought by those who knew him best to savor of affectation.

He wore a heavy, dark fur overcoat buttoned with loops, and carried under one arm a portfolio of charts and a few books, and a case containing a physiological instrument in the other hand. The snow was very deep and a fresh storm was evidently just beginning, and where the snow had not blown from the icy sidewalk it crunched under foot with a dry, crispy noise, the cause of which he had investigated in a special memoir. His thoughts were busy, quickened by the frosty, gusty air, and he was annoyed at the crowd of shop girls who just after the closing hour thronged the streets on their way home. He finally struck out into the open common which became more and more secluded the farther he penetrated it, and soon found himself in one of the narrow and unfrequented walks near the center of it, where the snow had been shovelled

for many a rod into a high wall on either side, when suddenly he became aware of a lady walking rapidly in the opposite direction. He observed that she was absorbed in a reverie of happy mood for she seemed in the dim light to smile to herself quite unconscious of his approach. Just at that point the snow, that had been melted in the sun on the north side, had frozen so as to make the pathway much higher upon that than upon the other side. He was not a gallant man, and with his head bowed continued doggedly upon the lower side, characteristically slackening his pace for her to pass. This she would have done readily enough had not the ice upon the upper side, which he left for her, been as smooth as polished glass, so that she slipped suddenly back transversely to his side of the path so close in front of him that the bobbing feather of her hat actually tickled his nose and he felt her warm breath for an instant upon his cheek. Not for many a long year had his lips been so near a girlish face. As she stepped quickly back he observed in the gathering night that she was fair, fresh and young, and that she was blushing crimson at the awkward accident.

Professor Hardipan had been brought to a full stop, but with characteristic promptitude and a natural attempt at gallantry he bravely stepped up to the slippery side with a sudden spring that would have carried him safely round her where she stood, so that each could have gone on their way had she not stepped quickly back half frightened by his sudden spring. Thus it came about that as he glided down to the lower side as she had done instead of having passed her, they were again as before, face to face. The books under his arm had gently touched her shoulder almost like a good natured and confidential nudge in the ribs, and she got the peculiar odor of the laboratory that always enveloped his person like an aura and even smelled the cigars in his vest pocket, that for an instant were not six inches from her pretty nose. Had not her muff and the professor's box acted as a buffer, their proximity would have been still closer.

They stood thus but an instant, when by a simultaneous and natural impulse they both sprang with a strong impetus to the steep side, each with the design of allowing the other to pass with a wide berth before the inevitable slide. So exactly together was this design conceived and executed, however, that there was a square collision at the top and both slid slowly down four feet face to face to the other side again. In the instinct of saving herself from a fall, she automatically clutched at the portfolio of anatomical charts under his arm, which fell and lay open at their feet at an introductory cut of human figures facing each other. She was the first to spring away,

while Professor Hardipan was angry, as so petty a vexation could make a petulant and tired man, ground his teeth and clenched his fist as he stooped down to pick up his charts. Unfortunately, however, the loop of his fur coat had caught in the button of her jacket and her recoil had been so sudden that the professor was literally jerked off his feet and fell upon his face before her. Books, cigars, and instruments were scattered by his side, and she perforce was bending over him. This tableau, however, was ended quickly for she stooped still lower (as if whispering into his ear as he afterward humorously said) to relax the tension of half his weight about her neck and unbutton the sudden attachment between them.

She might easily have sprung over his knees and gone on her placid way as the deep and rare oath of rage, whether at himself or her or the fates, were thus suddenly and relentlessly enmeshing him in their web, no doubt prompted her to do. Who shall tell why she lingered and helped collect his scattered luggage, while he slowly regained his feet? Why, before re-encumbering his arms with his parcels, did he not take her gently by the shoulders and waltz her around in half a circle safely to the other side of himself? Why above all did she notice the scratch upon his nose from which the blood was trickling and ask in the tenderest inflections that ever modulated a woman's voice, if he was hurt? Why did he reply only by a defiant snort of anger and thus lay up food for future remorse, as her sweet tones echoed and re-echoed afterward in the deepest chambers of his heart? Why did no one come along? Why had any one of the thousand things not happened so that they should not have met at all or a few rods sooner or later? If any of these things had been otherwise, the story of these eventful seconds in this unromantic spot, where the course of true love it was afterwards plain had proved all too smooth, would have ended here.

As it was, however, when he was up and had full possession of all his traps, Professor Hardipan seemed a trifle mollified, and he slightly—let us hope gracefully—inclined his head to his fair vis-a-vis as he was about to step lightly aside for her to pass. But once more, for truth is incredibly stranger than fiction, by one of those rare concomitant variations we often experience upon the street or sidewalk, where it is impossible always to turn to the right, she courteously and simultaneously did the same. Instantly both dodged back now but half the width of the narrow walk, and back and forth they went several times, each about the same distance and at the same rate.

It was a clear case of what Leibnitz called pre-established harmony between two human beings. No two pendulums, it seemed to the professor, ever swung with more perfect uni-

formity, and he declared afterwards that the awful thought occurred to him that they might if breath and muscle had been unflinching have gone on thus till morning. Each for an instant suspected the other of design, but as they paused and looked into the other's eyes, it was evident that all the thoughts and energies of both were now bent solely and intensely upon ending this most embarrassing encounter. Each threw a hasty glance behind as if with the thought of turning round and giving up the pass, but as they faced each other again it was evident that vexation had gradually begun to give place to another quaint, if somewhat scientific fancy, in the breast of the professor. It flashed across him that this must be a case of perfect identity of the personal equation which he had investigated and which has been said to be the same in no two human beings. Here were two independent human wills both automatically free, yet perfectly constrained and indeed checkmated as it were by the other. It suggested to his psychological mind an indefinite perspective of inner harmonies, which might be the other's fate, counterpart, or what you will, just as the hypothetical Brundisian ass if "exactly" between the two bundles of hay would surely die of starvation. Up to this moment at least he would have ridiculed the platonic legend that flitted through his mind of male and female created in pairs or rather as one monadic soul, which Jove later split like a sorb apple with a horse hair, and which malign fate had shuffled with other halves through the world. Here the halves of an original whole were brought together again in their rarest affinity. This timid, palpitating, blushing, yet courageous creature had awakened the greatest interest he had felt toward any individual in all her species these many years. His fair encounteress appeared to be the one in all the world peculiarly adapted to be questioned, observed, studied, experimented on at close range. She somehow seemed to carry a key essential to his deeper self knowledge. She might possibly some time be made to love him beyond the dream of the Patient Griselda herself, enough even if he required her to submit to X-ray;—but no, such a thought at least must be absolutely forced out of his mind. Such, at any rate, is a tolerable account of Professor Hardipan's consciousness at the end of the first minute after he first saw the unknown girl, who still confronted him.

Thus it came to pass that it was with something like genuine good feeling that he said in tones more bland and apologetic than those he was wont to listen to from his own lips, the simple words "Please excuse me," as he was about to deposit his bundles in order we suppose to take her hand and chassé half round. Judge then of his utter astonishment to hear at the

same time the same words "Please excuse me" from her lips in perfect soprano accompaniment, not only of tone and pitch but inflection and cadence. He stood erect and stared into her face in dumb bewilderment. If his own shadow on the ground had risen up or his own image in the mirror had stood forth and spoken to him, it would have seemed no less a miracle. Nay, he could hardly trust his senses. It must be a dream or hallucination, a mirage and entoptic delusion, a ghost strayed from the rooms of the telepathic society or conjured up by some mischievous necromantic agency as yet unknown to man. Perhaps he was bewitched with a vision of beauty like the knight in Tasso's enchanted forest, and he must violently break the spell that was upon him. He stepped back, and like a mirrored reflection, she did the same. He decided to walk straight on, over or through the phantom, but she advanced apparently with the same hardy and desperate impulse, and he instinctively shrank back, and she did the same.

It was thus evident that not only their actions but quite likely their thoughts and feelings were falling into consonance; some mystic agency was cadencing their souls into complete unison. Would they ever be able to separate and go different ways? Each had perhaps hypnotized the other at the same time and in the same way and with the same kind of suggestion, for even such things he had read actually sometimes occur. How and by whom could such a spell that seemed to link their very souls be broken?

A faint smile, that had irradiated both faces for an instant, now vanished and both renerved themselves to quell this sudden apparition of destiny between them. Each sprang to the upper side and tried to clutch the snow on the high drift at the top with greater energy than before, but were only able to meet and by no means to pass each other. To whichever side each turned the other did the same, till the very gas lights in the distance seemed to wink and leer at them faintly, and yet more faintly. The curve of muscular fatigue itself was the same for both. It was no use, they must both with stoic resignation accept the inevitable with what joy they could. Nothing more could be done. Their very breathing and loud heart beats he fancied were both utterly and hopelessly synchronous. As they paused again and for the last time, chagrin and confusion not unmixed with anger and petty despair were depicted upon both countenances; but as their eyes mirrored each other again, each face brought home the utter ludicrousness of the strange adventure, dispelling all other feelings, and both broke forth into laughter. Lightly and cheerily it rang out upon the frosty air. His was lighter and heartier than his friends had ever heard, but hers kept both

time and tone, and some good genius prompted him to say "It is plain, miss, that one of us must turn back. Will you go my way or shall I go yours?" She faltered in reply, "I will go yours," and turned promptly about. The spell was broken but a far more lasting spell was upon his heart.

In emerging from that unfrequented walk, they found themselves in the south side of the park, and his house was just across the way. He ventured to ask her to allow him to attend her to her home after leaving his books and instruments at his own door. To this she modestly, yet with some evident embarrassment, consented. It was a long walk, but we will not prolong the story. "Will you go my way for life?" he said,—and they married a few months later.

Professor Hardipan, though by no means a model husband, has never been suspected of any designs of experimenting upon still less of analyzing his wife in the cause of science. His instincts are rather of an opposite synthetic sort, and three children have already blessed their union as I write.¹

Mrs. Hardipan's version of this story is far less extraordinary. We have adhered strictly to his. Hardipan's miracle or conversion, as it was called by his cynical friends in the club, was regarded as an egoistic, semi-myth, gradually evolved to excuse to others and explain to himself how it was that such a man as he came to fall so suddenly and desperately in love. Gossips of the other sex have whispered that it was a coquettish woman's trick to catch the attention of an eligible, rough diamond of a bachelor. Some have declared it was a wager and that Jeanette Moore had even boasted beforehand how she would do something like the above. Others more friendly have declared it was in a spirit of pure, unpremeditated, girlish frolicsomeness that she dared to balk a bearish don, simply because it happened to come into her head to do so, on the street, where his face was well-known. For ourselves we have no theory about the matter, but are sure that no man can be happier than the professor, and we see no reason why, were he not a scientific man and a free thinker, he ought not to thank God daily that he has become, as in the strange providence of love every bachelor may, a married man.

¹It is perhaps worthy of remark that this plain tale here told with literal and kinetographic truthfulness illustrates how severely the old classical unities of time, place, and action may be adhered to with the most objective conformity to facts; viz., whole time of action exactly two minutes; place or space of action 6 x 4 feet; action itself except the fall, an admitted defect, a *pendular sinus* vibration, the simplest of all dynamic unities on a plane surface of two dimensions. It is for these merits chiefly that this story claims a unique pre-eminence over all others ever written.

REPORT ON GEOGRAPHY.

The Report on Geography presented Nov. 15, 1901, at the meeting of the New England Association of School Superintendents by their committee, Superintendents Tarbell, Murdock and Nash, is an interesting contribution to geographical literature. The discussion is limited to geography in the elementary schools, but some important suggestions for more advanced work are made, as for example the outline of Professor Wagner's text-book on geography—p. 7.

The Report is divided into two parts, the first treating of the nature, value and aims of geography, its scope, limitations, and scientific aspect, together with a brief consideration of geography old and new. The second part considers the relations between geography and other subjects, methods of presentation, etc., and includes a somewhat detailed outline of work in this subject for the grades below the High School.

In addition to the points above noted, the committee have made an attempt to discuss the needs of the pupil through the periods of childhood and early adolescence with a view to adapting the presentation of the subject to the capacity and requirements of the pupil.

This part of the Report is especially commendable, not because the discussion is adequate, or in any way decisive, but for the reason that it is a recognition of the fact that a scheme of education is entirely dependent upon, and subordinate to, the nature and condition of the individual to be educated.

The committee seem to make a greater demand upon the periods of childhood and early adolescence than actual experience appears to justify (see pp. 24-25 and 26-27). This demand is also indicated in the plan of work for the grades below the High School, which provides for the presentation of matter that can hardly be assimilated at the ages indicated (pp. 27-60). Notwithstanding the possibility of securing a considerable knowledge of the elements of geography by an objective study of the immediate home environment, the fact remains that geography is and must be a representative subject which must be studied largely, if not entirely through illustrative material (models, maps, globes, pictures, reports of travellers, etc). This material in itself requires for its apprehension no inconsiderable experience, as well as a somewhat adequate knowledge of mathematics and physics. Even when these conditions are secured, it is very inadequate to the purpose to which it is devoted. The fact of the existence of an active imagination during childhood and early adolescence is not to be disputed, but it is not the trained logical imagination that is necessary for the apprehension of geographical relations.

Much matter that the committee regard as elementary should be delayed until the High School period when it may be presented scientifically. Much of the work done in geography in the grades below the High School is futile, and may be absolutely harmful. The modes of thinking known as cause and effect, and as science, have of course no existence in nature, and are only of value to the individual to the extent that they become to him the means of reaching a desired end with a minimum outlay of time and energy. Scientific work in geography as in any other subject can only mean an economical procedure, a process of the adaptation of thought to observed facts by which classifications and generalizations may be quickly reached. (See Mach. *Die Mechanik*, Leipzig 1897, p. 5.)

This economy in thinking, however, is only possible to a limited degree in childhood, hence the committee do well to delay the real work of geography until sufficient mental development is attained.

In the consideration of the scope and limitations of the subject, the committee have done well in trying to free geography from many of the subjects that have in some unaccountable way become attached to it. A valuable service has been done in eliminating all but the geographical determination (this latter being more historical than otherwise) of several sciences such as Botany, Zoölogy, Anthropology, Manufacture, etc., that have threatened to form a rather unmanageable appendage to geography. The committee have shown that only under special conditions do the processes and products of man's activity become facts of geography.

While limiting the subject on the one side, however, they seem to extend it unwarrantably on the other, inasmuch as they claim that, as a source of information, geography has no equal among its associated subjects. (p. 9.) The æsthetic and ethical values of the subject are very highly estimated (pp. 25-26) while they assert comprehensively that "geography offers a complete field for the cultivation of the mental faculties" (p. 25).

While admitting the immediate and practical value of the knowledge afforded by geographical study, we cannot rank this subject other than secondary as a source of information, while as a means of æsthetic or ethical culture, it must we think stand far below Literature and History. The study of the elements of geography has but a limited influence upon the character. The will is not developed, nor the feelings stirred as they are by a consideration of the actions of man.

The attempt to define geography has been as usual more or less unsuccessful. (p. 4-6). Reference to Webster, Worcester, the Century Dictionary, as well as to the famous Committees of "Ten," "Fifteen," and "Twelve" reveals definitions all more or less special and one-sided. The efforts of the present committee themselves are much more satisfying. On page 9 they state that the basis of geography is the earth, and not man. Not one of the definitions cited is in accordance with Professor Wagner's view of geography, which has (and we think rightly) called forth the approval of the committee, viz.; geography exhibits a distinct duality of character, looking on the earth from one point as a physical body, from the other regarding it as the dwelling-place of man, in which latter view it ceases to be more than a connecting link between Natural Science and History (p. 8). This view seems to be in accordance with the facts. Geography has to do with the relations of the earth to the other planets, and with the action and interaction of the elements of land, water and air, which constitute the earth. When life appears, though it be geographically conditioned, it cannot be regarded as strictly a geographical element, but must be looked upon as the starting point of an entirely different set of manifestations, organic, unified, and though, from the standpoint of evolution, dependent one upon the other, constantly differentiating, and becoming more and more highly specialized, and individualized.

As regards the discussion of methods of teaching, we may say that this is the least fortunate part of the Report. The definitions of method in teaching conveys no information either psychological or pedagogical and is in no sense distinctive. The discussion suggests the necessity for investigations into the actual presentation of this subject in the class-room.

The Report as a whole indicates not a little conscientious effort, and cannot fail to secure desirable results.

MARGARET K. SMITH.

LITERATURE.

The Training of Teachers and Methods of Instruction. Selected Papers by S. S. LAURIE, A. M., J.L. D., Professor of the Institutes and History of Education, University of Edinburgh. Cambridge: at the University Press. 1901. pp. 295.

This book is a collection of essays and addresses many of which have been published before but have been for many years out of print. Five of these are devoted more especially to the training of teachers and the teacher's work; the others discuss a variety of educational topics. Professor Laurie writes with conservatism and discretion, and he presents in this book a large body of wisdom in regard to education in general as well as certain English problems in particular. The nucleus of pedagogical common sense that it concerns every teacher to know is in great part to be found in these addresses.

The paper on "The University and the People;" and "The University of the Future" contains a description of the best features of the English universities and a sketch of Professor Laurie's ideal of the university of the future. The latter is based on the former, and is liberal and democratic. The question may fairly be raised, however, whether this ideal does not face the past rather than the future; for Professor Laurie makes a division between the things which pertain to the spiritual and intellectual life of man and those which have to do with his physical needs, and "Instruction in all the practical applications of science which have to do with bodily needs should," he maintains, "be outside the University and find a home in special Technical Colleges." No such rigid division is possible even to-day, and the college of the future will probably be still less able to divide the content of science and of culture into two parts, one of which constitutes "the true life of man," and the other dealing with practical affairs which have no scientific or culture value.

It was the reviewer's privilege to hear one of these addresses, the one on The Philosophy of Mind and the Training of Teachers, when it was delivered by Professor Laurie before the Teachers' Guild in London. The speaker gave a vigorous address, redolent of common sense, and with sound logic and somewhat heavy armored wit he put to flight the arguments of the English Münsterbergs, and maintained the thesis: "Sound theory is sound practice become conscious of itself; and every schoolmaster who would also be an educator should be conscious of the art he practices, so that he who is not born, or only it may be half born, may through that scientific consciousness be made; and that he who is born may have his consciousness enlightened and fortified." After the address, the reviewer inquired of an eminent English psychologist whether it was still necessary to set forth elaborate arguments to prove to teachers the advantages of studying psychology, the science underlying education. The reply was that in England this was still necessary. Unfortunately the same is true both in America and England to-day; and thus it comes to pass that strong men like Professor Laurie have had to spend a greater part of their time in repeating and enforcing the fundamental teachings of the Comenian Didactic instead of contributing something to the content of pedagogy and genetic psychology, the science at the basis of pedagogy.

W. H. B.

Tarr and McMurry Geographies. A Complete Geography, by RALPH S. TARR and FRANK M. MCMURRY. The Macmillan Co., New York, 1902. pp. 478.

This complete geography is hardly less copious than that of Frye, although much more easily handled. It contains 512 cuts, mostly well chosen, with many maps and rather copious treatment of seasons, wind, rainfall, temperature, etc. It is certainly a new dispensation of the stock material of geography with abundant modernizations and additions.

Physics, by FREDERICK SLATE. The Macmillan Co., New York, 1902. pp. 414. Price, \$1.10.

The author attempts to get closer at a few points to the requirements of a situation that is now developing under our hands in the high school. He first treats the general properties of solids, liquids and gases in four chapters; heat and energy in seven chapters; while four chapters are devoted to light and three to electricity; with supplementary references to collateral reading; outlines of experiments and miscellaneous questions. There are one hundred and eight illustrations, all diagrammatic.

A College Algebra, by G. A. WENTWORTH. Ginn and Co., Boston, 1902. pp. 530. Price, \$1.50.

This revised edition is intended for colleges and high schools, the first part simply reviewing the principles of algebra to quadratics. Some chapters of the old edition have been wholly rewritten, the order of topics changed, and the effort is to present each topic in the clearest light.

Proceedings of the Society for Psychological Research. London. Part XLIV, Vol. XVII. June, 1902. pp. 275.

This number is largely taken up with reports of sittings with Mrs. Thompson, no less than seven articles by as many different writers being devoted to her, including one by the late Mr. Myers. Thirty pages of book notes conclude the number.

Chapters on the History of the Arts and Crafts Movement, by OSCAR L. TRIGGS. Published by the Bohemia Guild of the Industrial Art League, Chicago, 1902. pp. 198.

This is by far the best story of the arts and crafts movement that has yet appeared. The book itself is elegant in form, and traces the movement back to Scott's mediævalism. It describes Carlyle's relation to the new industrialism; Ruskin's contributions to the doctrine of work; twentieth century economy; the omitted elements in political economy; William Morris and his plea for an industrial commonwealth; states the principles of the Hammersmith Socialist Society; Ashbee and the reconstructed workshop; Rookwood as an ideal workshop; the development of industrial consciousness; makes a proposal for a school and guild of handicraft; and characterizes the Industrial Art League, with full page portraits of Carlyle, Ruskin, and William Morris.

Children's Arithmetics by Grades, by WILLIAM E. CHANCELLOR. Globe School Book Co., New York, 1901 and 1902.

First book, numbers; second, fundamental operations; third, intermediate principles; fourth, essential elements; fifth, standard measurements; sixth, commercial affairs.

"This book," we are told, "is neither topical nor spiral in plan; its substance is neither ratio nor counting; its purpose is to conform

numbers in their facts and principles to the usual processes and powers and interests in children's minds." "The core of the concentric theory is recognition of the value of finding something that is known even in the mass of the unknown. Because comparing is the root and numbering is the top, let us not forget reckoning, which is the main trunk of arithmetic." The author believes in books, and fears oral instruction may be continued too long; hence his volumes are for reading and study rather than for setting many exercises in writing figures. It calls most for the quiet, studious effort of the child to think through the number processes for himself. There are cubes, clocks, rules, notes, dots, tables, geometrical figures, cords of wood, scales, etc. If there be too much matter in these six volumes, they are certainly very attractive.

Mediæval and Modern History. Part 1. The Middle Ages, by PHILIP VAN NESS MYERS. Ginn and Co., Boston, 1902. pp. 454. Price, \$1.20.

This is a revision of the first half of the author's *Mediæval and Modern History* published sixteen years ago, and will soon be followed by a companion volume, entitled "The Modern Age," revising and extending the second half of the original work. The first period treated is the dark ages; and the second the age of revival, including feudalism, the Normans, the papacy, crusades, Mongols, the growth of towns, universities and school men, the growth of the modern nations. There are twelve colored and three sketch maps. In material and form, the book is a model of its kind and leaves little to be desired.

Historical Sources in Schools. Report to the New England History Teachers' Association by a Select Committee, Charles D. Hazen, Chairman. The Macmillan Co., New York, 1902. pp. 299. Price, 60 cts.

In the first part, which treats of the usefulness of sources, the field of study is defined and sources are treated as a foundation, stimulus, and discipline. In the second part, ancient history is considered and divided into nineteen periods. The third part treats of mediæval and modern European history in thirteen periods; the fourth, or English history, in nine periods; while the last part is devoted to American history. As a whole, the work is invaluable for high school and college students.

Introduction to Physical Science, by ALFRED P. GAGE. Ginn and Co., Boston, 1902. pp. 359. Price, \$1.00.

This is a new edition of a truly standard work with 256 well chosen cuts and illustrations, and happily without too much mathematics; with plenty of exercises for practice, for which one-third of the time is desired; and with all the text-book features emphasized.

Training the Church of the Future, by FRANCIS E. CLARK. Funk and Wagnalls Co., New York, 1902. pp. 225.

This is a valuable and summary statement of the author's views on the church of the future; methods of Christian nurture, past and present; the Society of Christian Endeavor as a training school, and other training classes. The appendix contains a model constitution, account of Junior societies, the civic club, home circle, Macedonian phalanx, the quiet-hour catechism, etc. It is based on a course of lectures on Christian nurture, with special reference to the Christian Endeavor Society, which have been given at various centers, and is extremely valuable as really the first comprehensive statement of work of this organization.

Manual of Astronomy, by CHARLES A. YOUNG. Ginn and Co., Boston, 1902. pp. 611. Price, \$2.25.

This volume was prepared in response to a rather pressing demand for a text-book intermediate between the author's *Elements of Astronomy* and his general *Astronomy*, so that its material is largely derived from its predecessors; but everything has been carefully worked over, rearranged, and rewritten, and thoroughly brought up to date. It is copiously illustrated with 208 cuts, well indexed, and well provided with tables.

Childhood Society for the Scientific Study of the Mental and Physical Conditions of Children. Transactions, Vol. I, 1901. London, 1902. pp. 80.

Besides the portrait of Sir Douglas Galton, a list of the officers, expenses, gifts, and books in the library, and the annual report, this pamphlet contains valuable discussions by various members of the society on food dietaries in relation to school life; natural history methods of observation of children; methods of determining those that need special instruction; reading methods; effects of child study upon the social questions; school discipline, etc. Both the society and this first volume of its transactions bear interesting witness to the progress of this movement in England.

Spelling and Word Building. A Primary Vocabulary, by EUGENE BOUTON. University Publishing Co., New York, 1902. pp. 118.

This is a somewhat original method of approaching language work for very young children. The work is copiously illustrated in the main from things that appeal to child life and certainly contains new and interesting features.

The New Hamlet Intermixed and Interwoven with a Revised Version of Romeo and Juliet, by WILLIAM HAWLEY SMITH and the SMITH FAMILY, Farmers. Printed from the original manuscript, with text in full, and as first produced when done in action by the Smiths, their own company, under the haw tree, on their farm, at the thicket, June 17, 1902.

This play was composed by Shakspeare and the Smith family. Then it was done into a book, and bound in boards (No. 2 fencing), by hand, at the barn, on the farm, by farmers. J. W. Franks and Sons, Printers, Peoria, Ill. pp. 64.

This drama, which is printed upon calendered paper, is bound in two rough, knotty, pine shingles, with three tow strings, the whole being intended as a clever take off of some of the vagaries of the school of William Morris, the Arts, and Crafts people, and the Roycrofters. As "Wandering Willie" remarks in the dedication, "If Hamlet had married Juliet and Romeo been wedded to Ophelia, all would have lived happily ever afterward." Bacon did not write this play; it was made by farmers who make bacon, and this establishes the pedigree of the play, which cannot soil the slightest intellect, and "is guaranteed to be non irritating and unthinkable." "It can be administered without the least knowledge on the part of the recipient." Four generations of Smiths were represented in the cast.

Principles of Language Teaching, by J. J. FINDLAY. (Macmillan's Manuals for Teachers.) The Macmillan Co., New York, 1902. pp. 442. Price, \$1.25.

After an introduction defining education, practice, etc., the author discusses motives in the selection of the curriculum for each period of child life, and thus passes up the grades, treating last of method, the acquirement of knowledge, school and class management.

Athalie, par JEAN RACINE. Edited with an Introduction and Notes, by F. C. De Sumichrast. (Macmillan's French Classics for School and College Use.) The Macmillan Co., New York, 1902. pp. 198. Price, 60 cts.

The author desires not merely a new edition of Racine's masterpiece, but to present it as a living play intended for performance rather than for quiet reading in study or class-room, and also to indicate the influence of the Greek drama upon the author and to show his biblical knowledge and its effect upon him.

A Manual of Civics for New York Schools, by C. W. BARDEEN. C. W. Bardeen, Syracuse, N. Y., 1902. pp. 699. Price, \$1.00.

This work begins with the town, its power, officers; passes to the county and its court, the village, the city, thence to Greater New York and the State; discusses the bill of rights, elective franchise, how laws are made, courts, administration, duties of officers, taxation, academies and colleges, the President and his powers, Congress, and ends with various important documents and illustrative maps of the State of New York, for the understanding of which it ought to be a valuable contribution.

Studies in United States History, by SARA M. RIGGS. Ginn and Co., Boston, 1902. pp. 173. Price, 60 cts.

This plan is an effort to place before the pupils such topics, questions and matter as will lead to a thorough comprehension of the subject and also to present the subjects as a connected whole.

The Story of the Greatest Nations from the Dawn of History to the Twentieth Century, by EDWARD S. ELLIS and CHARLES F. HORNE. Parts 13 to 30 inclusive. 25 cents each. F. R. Niglutsch, New York.

This publication has now reached the thirtieth of the seventy-two parts. Each part contains twelve full page pictures, most of them from famous masters, illustrating historical events. The complete work will contain nine photogravures, nine maps, about nine hundred full page illustrations, and hundreds of text illustrations. Altogether it will make one of the most interesting and comprehensive aids to the study of history that have yet appeared.

The Kokka. A Monthly Journal of Oriental Art. No. 135. Published by The Kokka Company, Tokyo, Japan, Jan., 1902.

This monthly journal of Oriental art reached its one hundred and thirty-fifth number last January. Each contains about half a dozen full page plates, often colored, of Japanese or other Oriental paintings by famous artists. The whole is about 11 x 15 inches, gilt edged, is never folded, and is altogether a very attractive and valuable publication.

Sketches of Great Painters for Young People, by COLONNA MURRAY DALLIN. Silver, Burdett and Co., Boston, 1902. pp. 293.

This is dedicated to Larkin Dunton, late of the Boston Normal School, and describes briefly twenty-one of the great painters. There are nearly sixty illustrations.

Ten Englishmen of the Nineteenth Century, by JAMES RICHARD JOY. The Chautauqua Press, New York, 1902. pp. 260.

The ten chosen are Wellington, Canning, Stephenson, Russell, Cobden, Peel, Shaftesbury, Palmerston, Gladstone, Disraeli.

Literary Leaders of Modern England, by W. J. DAWSON. The Chautauqua Press, New York, 1902. pp. 275.

The writers treated are Wordsworth, Tennyson, Browning, Carlisle, and Ruskin.

Dr. Chamberlain expresses suggestive views upon a new and large question in which those who take broad views of education must be interested. The Editor may add that for three years he has given a course of lectures, which have steadily grown in number, upon the topic of race pedagogy.

Mr. Wilson gives another chapter of his invaluable bibliography of child study, which no one interested in the subject can do without.

The notes on literature are more extended than usual.

The index of this last number of the volume follows.

INVENTION VERSUS FORM IN ENGLISH COMPOSITION. AN INDUCTIVE STUDY.

By STEPHEN SHELDON COLVIN, University of Illinois.

To attend first to invention is the formation of a good style.
—HINSDALE.

Originality is a shy flower, and will unfold only in a congenial atmosphere. One may as well grasp a sea anemone and expect it to show its beauty, as to ask a child to write from his own experience when he expects every sentence to be dislocated in order to be improved.
—Miss H. L. KEELER, in Preface to Studies in English Composition.

INTRODUCTION.

Of the various subjects belonging to the secondary school curriculum there is none that to-day occupies a more unsatisfactory position than English; and this for several reasons. In the first place, the teaching of English as a distinct specialty on the same footing as mathematics, the modern languages, the classics, the natural sciences and even history is of late development. Further the aims in teaching English are neither clear, nor definitely agreed upon; and even when the end is set down the means of attaining it are not at all certain. These conditions are not confined to English alone, it is true; yet they are present in an unusual degree in this department of the curriculum. For example, the aim and method in mathematics admit of relatively slight discussion, while the other exact sciences that are based on mathematics are in a similar position. The teaching of Greek and Latin is still confined for the most part to a traditional method, which, however unpedagogic, has a definite aim. Instruction in the modern languages varies considerably, but the so-called "natural" method is the one now generally recognized. The pedagogy of biology and related sciences has been clarified of late by the work of Dr. Hodge,¹ and even history is being taught as a living subject, having passed beyond the stage of mere grind and memory cram.

In the field of English, however, there seems to be no satisfactory orientation. This is seen when we consider the teaching of it as literature. Those teachers who have been awakened from their dogmatic slumber, and who realize that literature cannot be taught with grammar and lexicon, are generally sadly

¹C. F. Hodge: *Nature Study and Life*, Boston, 1902.

at sea as to the method of making the subject more real and vital. Their teaching often lacks definiteness and fails to appeal to the apperception of the pupils. For many, however, the teaching of literature still means the eternal thumbing of the dictionary, the never ending study of rhetorical subtleties, the wearying quest for historical information. Every allusion is traced to its source, unessential facts are learned only to be forgotten, figures of speech are analyzed and their real strength is thus lost, poetry is scanned until its æsthetic quality is destroyed and so on *ad infinitum*. Thus the most vital of all subjects in the secondary-school curriculum is devitalized; for when you label a piece of wit it ceases to be wit, when you discourse on the beauty of a passage the pupil listens to your words (if he listens at all) and forgets those of the author.

Yet this state of affairs, as bad as it is, is not without hope, for, as has been said, there are some who understand that there is a problem here; and so it happens, either because of, or in spite of the teacher, that many pupils emerge from their high school course with a genuine love for some field of English literature. The tragedy of a defective education does not lie entirely here.

There is a phase to the teaching of English other than that of the teaching of it as literature, and this is, perhaps, the most hopeless phase, for here is a fancied security, and yet a most certain danger, all the more serious because even the progressive teachers have almost without exception failed to clearly recognize it. The danger referred to relates to the prevailing methods of teaching English composition.

It is a well known fact that the majority of boys and girls do not like to write English, or at least that sort of English that is required in a school composition. It may be imagined that this dislike is due to an inherent perverseness on the part of the pupil to put down his thoughts on paper, and it is doubtless true that there are some dullards and indolent pupils who detest any kind of effort merely as effort. A great many young adolescents, however, like to write what they may really claim as their own. For example, John, aged fifteen, takes delight in writing stories of adventure, and composes practical jokes by the page, but hands in a composition on "Tea Culture in China" or "A Scene in a Southern Cotton Field." Mary, a few months younger, entertains her friends with original stories, and creditable attempts at verse, but can find nothing better to write about in her school work than "Bridge Building" and "Patience."

It seems not far from the fact that when a formal composition is announced to a class an unhealthy psychosis is often the result. And what could be more natural? From the pupil's earliest recollection, what has an exercise in written English signified

but criticism of the form of expression? There can be little chance for spontaneity under such conditions, for it is doubtless true that the average pupil imagines a school composition to be as far removed from what is natural and real to him, as grammar and rhetoric are separated from his every day life. He apperceives the whole matter in terms of red ink and blue pencil. But surely the form is not the whole thing; the matter is of some value.

§ I. THE PROBLEM.

And here the definite problem is reached which it is the aim of this paper to discuss, namely: Can invention in English composition be taught? At this point it is necessary to consider briefly what may be included under the term invention. Broadly stated it is that which may be distinguished from the formal correctness of grammar and rhetoric, but the dividing line on the rhetorical side is not always easy to draw. Invention may be defined in other terms as spontaneity, originality, creative power. Genung in his *Practical Rhetoric* says:

"Invention, as applied to literary undertakings, comprehends the various procedures involved in finding, sifting and ordering the material of discourse. . . . The first stage, the finding of material by thought and observation, is the fundamental and inclusive office of invention, the distinctive power that we designate in the popular use of the term. Here lies obviously the heart and center of literary production; it is what the writer finds in his subject on the world of thought, that gauges his distinction as an author. Yet this is of all processes, the one least invaded by the rules of the text-book. It is a work so individual, so dependent on the peculiar aptitude and direction of the writer's mind, that each one must be left for the most part to find his way alone, according to the impulse that is in him."

According to Genung, then, literary invention in the strictest sense of the word is not to be taught; and if this is so, our problem will end negatively, except in so far as we find a solution by attempting to remove from the path of the pupil those obstacles to invention which too great stress on the formal correctness of written English places in his way. And even this would be no mean accomplishment.

The present paper, however, ventures to give a slightly different definition to the term invention, a definition which seems to leave open the possibility of teaching invention, or at least stimulating it. From this point of view invention may be defined as the power of the individual to bring his reaction to his environment to clear expression,—to such an expression that the reader or hearer may enter into sympathy with this reaction.

By the term environment must not be understood the mere physical environment, but all those complex conditions, both real and ideal, both material and spiritual, which condition and stimulate the thoughts and feelings of the individual. It is further to be held in mind that invention in this sense is not confined to the genius. Inventive ability does not belong to a Homer or a Shakespeare alone, but to any one who is capable of expressing those psychic states which his relation with the world and his fellows brings into being. The difference is in degree, not in kind.

Proceeding from this standpoint the writer has attempted in an inductive study to answer the question:—

Is the inventive power of the pupil of the secondary school capable of being directed and improved; or must we content ourselves as teachers with the mere formal correctness of composition? Can we do something to stimulate originality and spontaneity, or must we leave the development of these qualities to accident or an act of grace? In essaying to throw light on this problem the writer has narrowed the field of inquiry to pupils of the first and second years of the high-school course, basing his observations on a study of over two thousand compositions of boys and girls between the ages of thirteen and sixteen years (the years of early adolescence). In the analysis of these compositions several subsidiary questions, directly or indirectly related to the main problem have arisen, which will be discussed in their appropriate places.

§ 2. THE TREATMENT OF THE MATERIAL.

The first set of compositions examined numbered 464, handed in during the school year 1900-1901 by 34 boys and 67 girls of the freshman class of the English High School, Worcester, Massachusetts. Three hundred and seven of the compositions were written by girls, and 157 by boys. The subjects of these compositions were not assigned in any case, care further being taken that as far as possible no suggestion in regard to subject should be given, except that all should be strictly original, and relate to something actually experienced or imagined by the writer of the composition. The purpose of the test was to discover whether compositions written under such circumstances, unhampered by direction from the teacher, would tend to develop spontaneity. All compositions which seemed in any way not original were thrown out, the test of originality being made by conversation with the pupils concerning their work, and by the teacher's knowledge of the pupil's ability as a writer. No suggestion was made to the pupils that these particular compositions had any wider purpose than that of an ordinary English

exercise. They were criticised, corrected and returned as a part of the regular year's work in composition.

The first point noted about these papers was the character of the subjects chosen. The girls selected in 216 cases (70.4 per cent.) subjects in simple narration; the boys in 100 cases (63.6 per cent.) did the same. The reason for this choice seems perfectly obvious. In the first place the mere sequence in time required for the arrangement of a composition in narration offers less difficulties than the sequence in space required for simple description, and for less difficulty than the more complex arrangement required for exposition, comparison and argumentation. Probably the most important factor in this choice, however, is to be found in the fact that whatever involves movement is inherently striking and interesting.

Thirty-three compositions (10.7 per cent.) written by the girls were on subjects in simple description, while the corresponding figures for the boys were thirty-two compositions (20.4 per cent.). Of subjects combining both narration and description 28 (9.1 per cent.) were written by the girls and eight (5.1 per cent.) by the boys. The remaining compositions were principally in exposition and of such a character that they differed but slightly from the themes in narration and description.

The second point noted was the elements found in these compositions giving evidence of inventive power. No attempt was made to make a thoroughgoing logical classification, only those inventive qualities actually found in the pupils' compositions being selected for study. The qualities noted were five, namely: Sense of humor, imaginative power, feeling, perceptive ability and logical power. The results were as follows:

In the boys' compositions 11.5 per cent. contained imaginative elements, 2.8 per cent. elements of feeling, 19.1 per cent. humor, 1.2 per cent. showed perceptive ability and 21.5 per cent. gave some evidences of logical power. The corresponding figures for the girls were: Imagination, 8.5 per cent.; feeling, 11 per cent.; humor, 9.1 per cent.; perceptive ability, 2.3 per cent.; logical power, 31.7 per cent.

In this set of compositions, as may be seen from the above, logical power was the inventive element which stood the highest for both boys and girls; humor came second in the list for boys, and feeling second in the list for girls; imagination stood third for the boys, and humor third for the girls; while in the fourth place came feeling for the boys and imagination for the girls, and last for both sexes stood perceptive ability.

As evidence of logical power the writer of the present discussion noted the sequence and arrangement of the compositions as far as they revealed a sense of relationship and unity. Many compositions showed an almost complete lack of this sense of

arrangement, the worst having absolutely no sequence either in time or in place. A slight advance over these were compositions which were a simple catalogue with no higher evidence of unity than that of mere time and space. Less than a fourth of the compositions written by the boys, and less than a third of those written by the girls, showed any order of arrangement other than that of a spacial or temporal sequence. Logical ability, however, as has been said, stood considerably ahead of the other inventive qualities in the first group of compositions, while for the boys the sense of humor approached it quite nearly. For the girls the feeling elements, which stand second, are found in about a tenth of the entire number of compositions. The other qualities, with the exception of imagination on the part of the boys, stand relatively low.

There can be but little doubt that the order and proportion of inventive elements in these compositions do not show in any considerable degree the real reaction of the writers to their environment. Feeling is a largely dominant element in the psychic life of adolescents. That little evidence of it is found in the first set of compositions indicates that these compositions were not calculated to call forth spontaneity. Other tests made with the same group of pupils showed that feeling to a considerable degree determined their apperception for, and comprehension of, literature. One hundred boys and girls who had just finished the reading of *Evangeline* were asked to indicate the scene in the story that had impressed them the most, and were further asked to state a reason for their answer. With but one exception their replies indicated conclusively that the scene selected was one which had strongly appealed to their feelings. Further tests made with the same pupils showed almost identical results.

The quality of imagination, extremely active and vivid during adolescence, stands surprisingly low especially for the girls. Most of the composition of an imaginative character were of a very simple nature, such subjects as "The adventures of a Needle" or "The Story of a Ten Cent Piece" being favorites. Thirty-five per cent. of the girls' compositions on imaginative topics were more or less lengthy stories. Twenty-two per cent. of the boys' imaginative themes were stories also.

Humor also finds a large place in the psychic elements of adolescence. The boys showed a perception for this quality in about one-fifth of the compositions written in the first set. The girls' compositions contained but few humorous elements. The humor in the themes of both sexes was of a crude type. Practical jokes appealed particularly to the girls. Uncouth characters provided the boys with subjects for several humorous themes, the old-clothes dealer and the Chinese laundry-man being particular favorites.

An important element in all descriptive and narrative writing is observational power, put down in the present study under the heading of perceptive ability. It is that form of apperception which enables the individual to see in the seemingly trivial and commonplace something of interest. Yet only seven compositions written by the girls gave evidence of this quality, while but two boys succeeded in describing a simple incident in a "newsy" manner.

An attempt was made in the set of compositions first analyzed, as well as those later examined, to grade the themes according to both inventive power and formal correctness, and for this purpose six grades of inventive ability were distinguished ranging from the very lowest type where the compositions were mere collections of sentences to the highest where imagination, humor, critical power and other qualities were found to a considerable degree. Corresponding to these six diversions of inventive power were six groups of formal and rhetorical correctness. The division into six groups was of course arbitrary, and made as a matter of convenience. It is, however, the grouping that has been used to some extent in psycho-physic measurements and offers certain advantages. In the first three grades fell those themes which on the whole showed a positive lack of merit, while in the three higher grades were placed the compositions whose merits surpass their defects. The highest grade contained those compositions which showed marked excellences, the lowest those which were distinctly without merit. The results are shown for the five groups in tables I to X inclusive, the odd

TABLE I.

	I	II	III	IV	V	VI	T
I	2	6	1	1			10
II	2	25	13	1			41
III	5	14	52	9	2		82
IV		5	7	7	1		20
V				3	1		4
VI							
T	9	50	73	21	4		157

TABLE II.

	I	II	III	IV	V	VI	T
I		6	8	1	1		16
II		20	39	13	1		73
III	1	24	47	36	3		111
IV		1	29	32	13		75
V				11	20		31
VI						1	1
T	1	51	123	93	38	1	307

TABLE III.

	I	II	III	IV	V	VI	T
I	2	5	1				8
II	1	9	4	2			16
III		2	20	18			40
IV	1	2	9	7	5		24
V			1	3	4		8
VI							
T	4	18	35	30	9		96

TABLE IV.

	I	II	III	IV	V	VI	T
I	1	2	1				4
II	1	6	8	9			24
III	1	4	60	59	56		180
IV		1	15	47	16		79
V				18	39	23	80
VI							
T	3	13	84	133	111	23	367

TABLE V.

	I	II	III	IV	V	VI	T
I							
II		10	19	2			31
III		5	60	22	1		88
IV		1	9	48	1		59
V			1	3	11		15
VI							
T		16	89	75	13		193

TABLE VI.

	I	II	III	IV	V	VI	T
I	1						1
II		3	11	2			16
III	1	3	68	46			118
IV			14	68	9	1	92
V			2	9	11	2	24
VI					1	1	2
T	2	6	95	125	21	4	253

TABLE VII.

	I	II	III	IV	V	VI	T
I							
II	I	5	2				8
III		6	32	24			62
IV		2	17	70	14		103
V				2	8		10
VI					2		2
T	I	13	51	96	24		185

TABLE VIII.

	I	II	III	IV	V	VI	T
I							
II	I	6	4	I			12
III		6	45	30			81
IV			8	83	25		116
V				7	22		29
VI				I	I		2
T	I	12	57	122	48		240

TABLE IX.

	I	II	III	IV	V	VI	T
I							
II			I				I
III		2	25	17			44
IV		2	27	46	18		93
V			3	10	19	2	34
VI				2	5	10	17
T		4	56	75	42	12	189

TABLE X.

	I	II	III	IV	V	VI	T
I							
II		I					I
III			13	10			23
IV		2	12	83	35		132
V			5	16	36	12	69
VI				5	9	24	38
T		3	30	114	80	36	263

numbers for the boys and the even numbers for the girls. The numerals above each table indicate the degrees of formal cor-

rectness, those at the left of inventive power. The letter "T" indicates totals for each grade. The tables show the number of compositions in each group, the number in the lower right hand corner being the sum of the totals for each grade; and also indicate the number of compositions in which the grade for formal correctness and inventive power was the same. For example, in table one, two compositions were given a grade of I both in formal correctness and inventive power, 25 compositions were given a grade of II, 52 were given a grade of III, seven were given a grade of IV and one was given a grade of V. Examining more closely tables I and II, which give the figures for the first set of compositions, we find that of the boys' compositions 24 (15.3 per cent.) were above the third grade in inventive power, and 25 (15.9 per cent.) were above this grade in formal correctness. The corresponding figures for the girls were: inventive power, 107 compositions (34.9 per cent.); formal correctness, 132 compositions (42.9 per cent.). The average grade of inventive power was for the boys 2.79; for the girls 3.12. In formal correctness the average grade for the boys was 2.75 and for the girls 3.39.

In the second set of compositions studied, an attempt was made to stimulate spontaneity by requiring the themes to be read in the class and criticised by the pupils rather than by the teacher. The content of the themes was open to criticism as well as the form. The papers were marked but not corrected. They were brief in character and not prepared as a part of the formal work. They were written for the most part by the same pupils who wrote the first set, and were presented from time to time during the same year. Four hundred and sixty-three of these themes, 96 from the boys and 367 from the girls, were analyzed and tabulated. Like the first set the large majority were themes in simple narration. The remainder were entirely in narration and description, and in simple description. The per cent. of the compositions in the second group containing the various inventive elements is as follows:

Imagination: boys, 6.3 per cent.; girls, 8.2 per cent.

Feeling: boys, 9.4 per cent.; girls, 12.5 per cent.

Humor: boys, 30.2 per cent.; girls, 16.6 per cent.

Perceptive ability: boys, 8.3 per cent.; girls, 9.5 per cent.

Logical power was not tabulated in this second set of compositions because the brevity of the exercises made it difficult to make a fair estimate of this quality. Comparing these per cents. with those for the first group of compositions, we notice the marked increase in the element of humor for both boys and girls. This increase is probably to be explained from the fact that the compositions were written with the class, and not with the teacher, in view; and hence a more spontaneous and natu-

ral product was the result. Perceptive power was also stimulated. On the part of the boys the element of feeling was more than three times as prominent in the second set of compositions as in the first, and slightly greater on the part of the girls. Imagination shows a considerable decrease on the part of the boys, and a slight decrease on the part of the girls. This may be accounted for partly by the fact that the brevity of the compositions gave little opportunity for stories.

If we consider the grading of the compositions in the second set we notice a decided improvement both in formal correctness and in inventive power. The figures are as follows:

Boys: average above the third grade, in formal correctness 40.6 per cent., in inventive power, 33.3 per cent.; average grade in formal correctness, 3.14, in inventive power, 3.08.

Girls: above the third grade in formal correctness, 72.8 per cent., in inventive power, 43.3 per cent.; average grade in formal correctness, 4.11, in inventive power, 3.56.

The meaning of these figures will be further discussed in a subsequent portion of the paper. We may observe in passing, however, that the inventive power of the pupils has evidently been stimulated by making the class rather than the teacher the principal judge of the merit of the themes.

The third, fourth and fifth sets of compositions were prepared during one week of January, 1902, by pupils of the English High School and of the South End High School, Worcester, Massachusetts. Like the first two sets of compositions these latter papers were composed as a part of the regular theme work, the purpose for which they were intended being unknown to the writers. The greater part of the papers were written by first year students. About 25 per cent. of the total, however, were prepared by pupils in the second year of the course. Five hundred and sixty-seven were written by boys and 756 by girls. With few exceptions all pupils in the classes to whom the work was given handed in papers in each of the three sets, thus making a comparison between these sets of particular value. These papers, unlike those already discussed, were not prepared under the writer's personal supervision, but furnished to him through the kindness of the English teachers in the two high schools. In these latter themes the pupils were not allowed to select freely the subject for their compositions, but were given the choice in each set of one of five topics. The papers of the third and fourth sets were written in the class during a recitation period of forty-five minutes, but those of the last set, on account of their more pretentious character, were prepared outside and handed in the following day. The selection of a list of subjects from which the pupils were to choose a theme was determined by a study of those compositions in the first two sets that con-

tained elements of originality and gave evidence of being written along the lines of the pupils' interests. The endeavor was made entirely in the fourth and fifth sets, and partly in the third, to offer topics which would tend directly to stimulate inventive power.

The topics in the third set of compositions were: A Sleigh Ride; Description of a Worcester Building; A Voyage in an Air Ship in the Year 2000; The Woods in Autumn; A Humorous Character or Incident. The first two subjects named were selected as typical themes in simple narration and simple description, and were put in the list to test the tendency which the pupils had to choose a subject requiring practically no spontaneity or inventive power over one which made demands for a higher grade of ability. The third subject was chosen to test the pupils' interests in a simple imaginative composition, the fourth to test their interests in the æsthetic and in the imaginative of a more subtle type and the fifth to test their interests in humor. In this set 193 compositions were handed in by the boys and 253 by the girls. The results of their choice follow.

A Sleigh Ride: Boys, 67 compositions (34.7 per cent.); girls, 145 compositions (57.3 per cent.).

A Voyage in an Air Ship: Boys, 54 compositions (27.9 per cent.); girls, 16 compositions (6.3 per cent.).

The Woods in Autumn: Boys, 26 compositions (13.5 per cent.); girls, 54 compositions (21.3 per cent.).

Description of a Worcester Building: Boys, 23 compositions (11.9 per cent.); girls, 11 compositions (4.4 per cent.).

A Humorous Character or Incident: Boys, 23 compositions (11.9 per cent.); girls, 27 compositions (10.7 per cent.).

It will be seen from the above that it is a composition in simple narration, "A Sleigh Ride," that leads for both boys and girls, being chosen by the former in more than one-third of the total number written, and by the latter in considerably over a half. For the boys an imaginative composition, "A Voyage in an Air Ship," is second, being the subject of more than a fourth of the compositions in this set. The subject second in the list for the girls was a theme demanding some apperception for the æsthetic and a degree of descriptive and imaginative ability, "The Woods in Autumn," chosen in about a fifth of the compositions. This was the third choice in the case of the boys, being selected in about one-seventh of the compositions. Third for the girls stood the compositions on "A Humorous Character or Incident," selected in slightly over one-tenth of the whole number of themes written by them. This subject divides with the themes describing a Worcester building the fourth place in the compositions of the boys, each subject being selected in approximately twelve per cent. of the themes.

Fourth for the girls, at a little over six per cent., stands "A Voyage in an Air Ship," and last, at something over four per cent., "A Description of a Worcester Building." It is clear from these figures that both boys and girls tended to select subjects of a simple and mechanical nature, and that compositions requiring imagination, humor and æsthetic perception are less often chosen.

The per cent. of compositions in the third set, containing the principal inventive elements, is as follows:

Boys: imagination, 33.6 per cent.; feeling, 15.5 per cent.; humor, 13.9 per cent.; perception, 5.7 per cent.; logic, 10.9 per cent.

Girls: imagination, 37.5 per cent.; feeling, 22.1 per cent.; humor, 13 per cent.; perception, 8.7 per cent.; logic, 11.1 per cent.

It will be noticed that there is a marked increase in imaginative power and feeling for both boys and girls when the per cents. of these qualities are compared with those of the first two sets. In humor there is a considerable falling off and in perceptive ability only slight differences between the second and the third sets. There is a considerable decrease in logical power as compared with the first set. This is doubtless to be explained by the fact that the compositions of the group now under discussion were written in the class, while those of the first group were prepared outside and were generally more elaborate. The marked increase of the imaginative elements in the third group may be explained from the fact that themes calculated to call forth this quality were suggested. Further, there seems to be a correlation between imagination and feeling, which would account for the increase of the latter quality through indirect stimulation. The cause for the decrease of humor may be better discussed when the fourth set of compositions, intended to directly stimulate this quality, is considered.

The analysis of the third set of compositions from the standpoint of inventive ability and formal correctness shows the following results:

Boys: above the third grade, in formal correctness, 45.6 per cent., in inventive power, 38.3 per cent.; average grade, in formal correctness, 3.34, in inventive power, 3.30.

Girls: above the third grade, in formal correctness, 59.3 per cent., in inventive power, 46.6 per cent.; average grade, in formal correctness, 4.06, in inventive power, 3.51.

Comparing these figures with those of the two preceding sets, we see that they are considerably higher in the group now under discussion, with the exception that the compositions of the girls in the second group have a higher per cent. and a higher grade in formal correctness, and a slightly grade in inventive power.

In the fourth group of compositions the pupils were directed to select one composition from the following on which to write: A Chinese Laundry, A Practical Joke, A Comical Incident, A Humorous Character, The Most Laughable Story I Ever Heard. As has been said, these subjects were presented with the intention of testing the pupils' apperception for the humorous. All the subjects except the first clearly indicated the character of the composition desired. The first subject was selected for the purpose of determining the number of pupils who would find in it something suggestive of humor, and also for determining the number who would select this subject as a composition in simple narration, description or exposition, thus avoiding the necessity of writing on a humorous topic. The number of compositions handed in by the boys was 185, by the girls 240. The results follow:

A Chinese Laundry: Boys, 89 compositions (48.1 per cent.); girls, 90 compositions (37.5 per cent.).

A Comical Incident: Boys, 42 compositions (22.7 per cent.); girls, 45 compositions (18.8 per cent.).

A Practical Joke: Boys, 24 compositions (12.9 per cent.); girls, 49 compositions (20.4 per cent.).

A Humorous Character: Boys, 15 compositions (8.1 per cent.); girls, 33 compositions (13.7 per cent.).

The Most Laughable Story I Ever Heard: Boys, 15 compositions (8.1 per cent.); girls, 23 compositions (9.6 per cent.).

Of the compositions by the boys on the topic "A Chinese Laundry," 20 per cent. contained humorous elements; of the compositions of the girls, a little less than five per cent. The remainder of the compositions on this topic were for the most part lacking in inventive power. The topic stands first in the list for both boys and girls, being chosen by the former in approximately half of the themes, and by the latter in considerably over a third. Second in the list for the boys came "A Comical Incident," as the subject of over one-fifth of the compositions; while "A Practical Joke" stood second for the girls, also at one-fifth of the total. Third for the boys was "A Practical Joke," selected in one-eighth of the themes, and third for the girls came "A Comical Incident," chosen in nearly one-fifth of the cases. Fourth for both sexes stood "A Humorous Character," being the subject of approximately one-twelfth of the compositions by the boys, and of one-seventh by the girls. Last for both boys and girls stood "The Most Laughable Story I Ever Heard," at less than 10 per cent. of the total.

When we analyze this set of compositions for the purpose of classifying the principal elements of invention, we find, as we would naturally expect, that humor leads largely for both boys and girls, being found in approximately 65 per cent. of the

compositions by both sexes. The exact figures in per cents. are:

Boys: imagination, 10.7; feeling, 1.6; humor, 64.1; perception, 5.9; logic, 13.5.

Girls: imagination, 11.3; feeling, 3.3; humor, 65; perception, 8.3; logic, 14.6.

We note, however, a marked falling off in the elements of both imagination and feeling, the latter standing at less than two per cent. for the boys, and barely over three per cent. for the girls. Perceptive ability remains practically unchanged, while there is a slight increase in logical power. From the above facts there would seem to be an inverse relation between the elements of feeling and imagination and of humor. This would also in part explain the fact that in the third set of compositions, where there is an increase in imagination and feeling, there is a corresponding decrease in humor. Later on we will discuss more fully the humorous elements in these and other compositions, and we shall find that the character of the humor which appeals to boys and girls of the early adolescent age is of such a nature as to naturally exclude the higher inventive elements.

In the fourth set of compositions the per cent. of papers above the third grade in formal correctness was for the boys 64.9 and for the girls 70.8. The average grade was for the boys 3.69 and for the girls 3.85. The corresponding figures for inventive power were: compositions above the third grade, 62.2 per cent. for the boys and 61.3 for the girls; average grade, 3.65 for the boys and 3.70 for the girls. Comparing these figures with those for the preceding sets of compositions, we notice that there is an increase for both boys and girls in inventive ability and formal correctness, with the exception that for the girls the average grade for formal correctness is higher in the second and third group, and the per cent. of compositions above the third grade in formal correctness is higher in the second group.

In the fifth and last group of compositions 452 themes were tabulated, of which 189 were written by the boys and 263 by the girls. The subjects from which the pupils were allowed to select were: The Adventures of a School Desk, A Trip to the Moon, An Original Story, A Fairy Story, How the Flowers Got their Colors. These themes were intended to stimulate the imagination directly, and indirectly the feelings and other inventive qualities. It was the intention to present in the first subject a suggestion for a composition based on simple imaginative elements well within the scope of the apperception of the pupils. The second subject was designed to appeal to what may be called the scientific imagination (the Jules Verne type), and was analogous to the theme "A Voyage in an Air Ship,"

in the third group. The third subject was chosen with a view to stimulating the higher powers of imagination and feeling, and also to test the more simple logical powers. The fourth was designed to test particularly the hold that the fairy story, so popular among smaller children, continued to have on pupils of the high school age. The fifth subject aimed to test the pupil's interest in a nature myth. The subject most chosen by the boys was "The Adventures of a School Desk," 78 compositions (41.3 per cent.) being presented on this subject. For the girls the leading subject was "An Original Story," selected as a topic in 96 instances (36.5 per cent.). Second for the boys came "A Trip to the Moon," this subject being selected in 50 compositions (26.5 per cent.). In second place for the girls was "The Adventures of a School Desk," which formed the subject of 93 compositions (35.4 per cent.). Third for the boys stood "An Original Story," selected in 49 instances (25.9 per cent.). "A Trip to the Moon" stood third for the girls, the figures being 27 compositions (10.3 per cent.). Fourth for both boys and girls was "A Fairy Story," being the subject of eight compositions written by the boys (4.2 per cent.) and of 25 compositions written by the girls (9.5 per cent.). Last for both boys and girls came the subject "How the Flowers Got their Colors" in four compositions (2.1 per cent. written by the boys, and in 22 compositions (8.4 per cent.) written by the girls. The above choice of subjects seems to indicate significant facts in regard to the quality of imagination possessed by boys and girls at the early adolescent period, and also to suggest important differences between the sexes. The bearing of these facts will be discussed later.

Considering in detail the elements of inventive power shown in this set of compositions, we find that they considerably excel those in the previous sets, with the sole exception of humor, which stands higher in two of the previous sets. Imagination leads for both boys and girls; 87.8 per cent. of the compositions of the boys containing imaginative elements, while for the girls the figures are still higher (96.2 per cent.).

Second comes feeling at 60.9 per cent. for the boys and 81.3 per cent. for the girls. Third is logical power found in 38.1 per cent. of the boys' compositions, and in 55.5 per cent. of those of the girls. Fourth is humor, noted in 24.3 per cent. of the compositions of the boys, and in 10.3 per cent. of those of the girls. Last stands perceptive ability, found in 10.6 per cent. of the compositions of the boys and in 9.9 per cent. of the compositions of the girls.

Considering the grades for formal correctness and for inventive power, we notice that the fifth set of compositions leads the preceding four in all respects. The exact figures follow :

Above the third grade in inventive power, 76.2 per cent. of the compositions of the boys, and 90.9 per cent. of the compositions of the girls; in formal correctness, 68.3 per cent. of the compositions of the boys, and 87.4 per cent. of the compositions of the girls.

Average grade in inventive power, 4.12 for the boys and 4.46 for the girls; in formal correctness, 4.01 for the boys and 4.44 for the girls.

The significance of these figures will be considered in a subsequent part of the discussion.

§ 3. DISCUSSION OF THE RESULTS IN DETAIL.

With the data now before us it will be possible to consider more directly the question raised at the beginning of this inquiry, namely: Can invention in English composition be taught? or more exactly, can spontaneity and originality be stimulated to seek expression? A further consideration of the grades of inventive power and of formal correctness for the five groups of compositions will help us to formulate an answer. If we study the figures belonging to these grades as presented in the previous pages, we will notice that there is a continual progress in inventive power both in the per cent. of compositions above the third grade, and in the average grade, with the single exception of the girls' compositions under group three, where there is a slight falling off in the average grade (from 3.56 to 3.51). The question now arises, Is the improvement thus indicated the result of mere accident or is it due to conditions capable of being controlled by the teacher?

In discussing this point, we must keep in mind the circumstances under which the various sets of compositions were written. It will be recalled that the compositions of the first set were prepared without further suggestion or direction from the teacher, as to topic and subject matter, than that all the themes were to be within the range of the pupil's experience, and in every respect original. This method has often been advocated as the one best adapted to secure spontaneity, but the results of the present study hardly warrant such a conclusion. The lack of any marked originality in the compositions of the first set may, I believe, be attributed to several causes. In the first place the natural inertia and lack of genuine interest in school subjects characteristic of many pupils would cause them to select the topic nearest at hand,—an insipid theme in simple narration or in description,—rather than to cast about for a subject more really in touch with their life. Moreover, with puberty there often comes a bashfulness and self-consciousness, which prevent the young adolescent from detailing his more vital experiences, at least to the teacher. But the most potent

factor, I believe, in inhibiting a spontaneous expression of thoughts and feelings is, as has already been said, the association of writing in school with mere formal correction and criticism from an adult, and often a very narrow and pedantic standpoint. We need, so to speak, more mental sunshine in our schools. The psychic climate has long been too bleak and chill. The environment has not been suited to the development of spontaneity. Originality must be stimulated by the teacher if she wishes to get results; and such a stimulation is only possible by appealing to the fundamental interests of the pupils.

In the second set of compositions such an appeal was made, and with results to a degree satisfactory. These themes, it will be remembered, were written to be read in the class, and not to be corrected by the teacher. The interest appealed to was a social one, the desire of appearing to advantage before one's fellows. Insipid compositions were no longer at a premium; the audience which was to judge them was alert and ready to see merits and detect faults; not the merits of correct orthography and grammatical accuracy; nor the faults of careless punctuation and the violations of rhetorical principles; but the merit of a comical situation, a genuine sentiment, a vivid imagination or a true insight, and the fault of a tedious description or an uninteresting narrative. It, however, follows as a necessary corollary that if the audience is to approve, it must clearly understand; and so it happens that not only is inventive ability stimulated, but formal correctness is enhanced as well.

The results obtained in the second set of compositions, though encouraging, were not in all respects satisfactory. As has already been pointed out, the great increase in inventive ability was in the quality of humor, and the other elements of invention were not correspondingly stimulated. Evidently all school compositions should not be prepared to be read before the class without suggestion as to topic or nature, as were those in the second group. We must seek to stimulate spontaneity more directly, and this can be done only when the teacher understands something of the fundamental interests of boys and girls; an understanding which would do more for the teaching of composition than would a knowledge of all the principles of rhetoric and grammar. It is the province of the teacher to find out these interests, both individual and collective, as far as it lies in her power.

In the third, fourth and fifth groups of compositions the aim was made to get at some of these fundamental interests, and also to discover more exactly their scope and nature. The results show, as has already been pointed out, that there was a continual progression in inventive power, which progression was directly associated with an increasing definiteness of direct

suggestion as to the nature of the theme to be written upon. The conclusion would therefore seem justifiable that the most certain way of securing spontaneity is to stimulate it by presenting to the pupils subjects for compositions chosen along the lines of the pupils' interests.

§ 4. SOME FUNDAMENTAL INTERESTS OF YOUNG ADOLESCENTS.

Considering more carefully some of these interests as revealed in the spontaneous elements of the compositions under discussion, we notice if we average the inventive qualities found in each of the five sets of compositions, that for the boys humor stands first at 30.3 per cent., imagination second at 29.98 per cent., logical power third at 21 per cent., feeling fourth at 18.04 per cent., and perceptive ability fifth at 6.35 per cent. For the girls the order is imagination first at 32.34 per cent., logical power second at 28.2 per cent., feeling third at 26.04 per cent., humor fourth at 22.08 per cent., and perceptive ability fifth at 7.74 per cent. If we exclude from this average the first set of compositions, in which no appeal, direct or indirect, was made to any of the qualities of invention, the order and per cents. are slightly, though not materially changed. For the boys imagination leads at nearly 35 per cent., followed closely by humor; feeling comes third separated by a considerable interval, and close to it in the fourth place stands logical power, with perceptive ability very much lower in the fifth place. The order for the girls is imagination first at nearly 40 per cent., while next, but nearly nine points lower, comes feeling. Logical power is a close third and is followed by humor, with but a small interval between, while perceptive ability comes fifth, nearly fifteen per cent. below. In other words, humor, which stood first for the boys in an average of the five sets, stands second in an average of the four last sets, imagination having passed it. Feeling has come into the third place and logical power has fallen below it to fourth, while perceptive ability still remains last. For the girls, however, the only change is in feeling which is in second place, while logical power has fallen to third. As regards the qualities of imagination and humor it must be remembered that the subjects suggested tended in many cases to call forth these elements directly, while feeling, logical power and perception were stimulated only indirectly. If we further study the above results we will see that for both boys and girls imagination and humor seem capable of direct stimulation, that feeling is indirectly stimulated in imaginative compositions, but not in those which are on humorous subjects; that logical power varies largely with the extent of the composition, but does not seem to accompany any particular element of spontaneity, while per-

ceptive power varies but slightly from set to set, and is by far the lowest of the five forms of inventive ability, and seemingly difficult of indirect stimulation. The study of these inventive elements in the various sets, and of their averages, shows some interesting differences between the inventive power of boys and girls as based on their abilities and interests. These will be discussed later.

(a) *Imagination.*

Turning from these general considerations of the factors that contribute to spontaneity, we may next consider these elements in detail with a view of determining more exactly the character of the interests which lie at the basis of each. Imagination shows, as might be expected, that it is largely of the mere reproductive type, the productive imagination being more in evidence among the girls than the boys. The original story has pronounced interest, being the favorite theme for the girls in the fifth set of compositions. An imaginary theme that comes close to the experiences of every-day life, and that demands no high flights of fancy is one that is apt to be chosen, as shown by the fact that 41.3 per cent. of the boys and 35.4 per cent. of the girls selected "The Adventures of a School Desk" in the fifth set of compositions. As has already been pointed out, what may be termed the scientific imagination has particular interest for the boys. This is made clear when we remember that of the boys in the third set of compositions 27.9 per cent. chose as a subject, "A Voyage in an Air Ship," and in the fifth set 26.5 per cent. chose "A Trip to the Moon." For the girls, however, this type of imaginative composition seemed to possess far less attraction. The fairy story and nature myth, which are supposed to be of particular interest to the pupils in the lower grades, do not seem to appeal to the pupils of the high school age. This is indicated by the fact that among the girls only 9.5 per cent. selected "A Fairy Story" as a theme upon which to write, while only 8.4 per cent. selected the subject, "How the Flowers Got Their Colors." For the boys the figures are still lower. It should be added, however, that the latter named subject demands an imaginative treatment of a relatively high type, and this alone may have prevented some pupils from writing on this subject. Further, in the case of the girls a considerable number who wrote on the theme, "A Trip to the Moon," treated it as a fairy story.

(b) *Humor.*

As has already been stated the interests of boys and girls in humorous topics seem to be of a relatively low grade. An analysis of the last three sets of compositions confirms this view.

Not considering the themes in the fourth set of compositions, which were designed to stimulate the quality directly, nor those in the third set on the subject, "A Humorous Character or Incident," we find that of the remaining papers 52 compositions (14.5 per cent.) were written by boys, and 61 (12.5 per cent.) were written by girls on humorous topics, or at least contained elements of humor. These elements have been classified under seven different heads, as follows:

Conceptions of humor founded on the teasing and bullying instinct: boys, 19 compositions (36.5 per cent.); girls, 17 compositions (27.9 per cent.).

Humor of the farce comedy type: boys, 13 compositions (25 per cent.); girls, 10 compositions (16.4 per cent.).

Strikingly ridiculous and absurd situations: boys, nine compositions (17.3 per cent.); girls, 14 compositions (22.9 per cent.).

A pun: boys, four compositions (7.7 per cent.); girls, five compositions (8.2 per cent.).

Story with a point: boys, two compositions (3.8 per cent.); girls, no compositions.

A peculiar character: boys, two compositions (3.8 per cent.); girls, four compositions (6.6 per cent.).

A witty or subtle turn of thought: boys, three compositions (5.8 per cent.); girls, 11 compositions (18 per cent.).

The above classification is not mutually exclusive in all particulars. The predominating character of each humorous composition was taken, however, as determining the head under which it should fall. An attempt was made in arranging the various humorous elements to place them in a progressive order, the more crude coming first. From this it can be seen that the finer elements are lacking in a marked degree both for boys and girls. It is the discomfiture of a companion, an absurd situation or a joke of the "knock-about" variety that has the most interest.

A tabulation of the humorous elements found in the compositions on the subject "A Comical Incident" in groups three and four, shows results practically identical with the above. The figures are as follows:

Teasing and bullying: boys, 19 compositions (28.4 per cent.); girls, 19 compositions (22.6 per cent.).

Farce Comedy: boys, 18 compositions (26.9 per cent.); girls, 16 compositions (19 per cent.).

Ridiculous and absurd: boys, 11 compositions (16.4 per cent.); girls, 23 compositions (27.4 per cent.).

Pun: boys, four compositions (5.9 per cent.); girls, six compositions (7.1 per cent.).

Character: boys, seven compositions (10.4 per cent.); girls, six compositions (7.1 per cent.).

Story with a point: boys, three compositions (4.5 per cent.).

Subtle turn: boys, three compositions (4.5 per cent.); girls, 11 compositions (13.1 per cent.).

Two of the compositions of the boys (2.9 per cent.) and three of the compositions of the girls (3.6 per cent.), written on these subjects, were devoid of any element of humor.

A study made of the compositions written in the fourth group on the subject "A Practical Joke," showed in the vast majority of cases (over 90 per cent.) for the boys, and to a great extent for the girls (nearly 70 per cent.) that humor manifested itself in the teasing and bullying instinct.

An analysis of the subject, "A Humorous Character," in group four, revealed the fact that a considerable number of pupils selected characters taken either from popular novels and stories or from well known impersonations on the stage. In the case of the boys three compositions (10.7 per cent.) were on Ichabod Crane, and in the case of the girls twelve (27.3 per cent.). One boy and one girl selected "Rip Van Winkle" as the subject for a composition. The elements of humor entering into these two characters seemed too complex for further analysis in reference to the quality which particularly impressed the writer of the theme. The remaining compositions, however, were placed under the following headings:

Victims or instigators of practical jokes: boys, 10 compositions (35.7 per cent.); girls, eight compositions (18.2 per cent.).

Countrymen and farmers: boys, eight compositions (28.6 per cent.); girls, 10 compositions (22.7 per cent.).

Foreigners: boys, two compositions (7.1 per cent.); girls, three compositions (6.7 per cent.).

Colored men: boys, one composition (3.6 per cent.); girls, four compositions (9.1 per cent.).

A witty companion: boys, two compositions (7.1 per cent.); girls, four compositions (9.1 per cent.).

One boy and two girls in writing on the topic "A Humorous Character" confused the subject with "A Humorous Incident."

The above figures show the large number of boys selecting the practical joke as the principal element entering into their conception of a humorous character, indicating again that the teasing and bullying instinct is strong in the male sex at this age. The number of girls who emphasized this element was considerably less, but doubtless the practical joke element in the story of Ichabod Crane was one of the causes which led to the choice of this story as a theme.

(c) *Feeling.*

The attempt to analyze the elements of feeling in the last three sets of compositions proved extremely difficult because of

the complexity and variety of their nature, as well as the uncertainty of their expression. Hence no complete classification was attempted. The egoistic feelings came first for both boys and girls, the per cent. of the total for the former being 65.4 and for the latter 59.6. The positively altruistic and the non-egoistic feelings numbered 27.1 per cent. of the total for the boys, 38.7 per cent. for the girls. Neutral feelings stood at 7.5 per cent. for the boys and at 1.7 per cent. for the girls. The painful feelings far outnumbered the pleasurable for both sexes, the figures being for the latter only 15 per cent. in the case of the boys and 32.9 per cent. in the case of the girls. Painful feelings stood at 65.4 per cent. of the total for the boys and at 59.9 per cent. for the girls. The neutral and mixed feelings stood at 19.6 per cent. for the boys and at 7.2 per cent. for the girls. Mere bodily feelings formed 15.9 per cent. of the total for the boys and 16.1 per cent. of the total for the girls. Fear was found in 19.6 per cent. of the feelings expressed by the boys and in 15.2 per cent. of the feelings expressed by the girls. Pride was noted in 2.8 per cent. of the total for the boys and in 7.1 per cent. for the girls. Of the more exalted feelings the æsthetic formed 5.6 per cent. of the total for the boys and 13.5 per cent. for the girls. The religious feelings were practically absent from the compositions studied, being given expression in only one instance by the girls and not at all by the boys.

§ 5. DIFFERENCES BETWEEN THE SEXES.

From time to time during the discussion of the facts presented in the foregoing pages comparisons have been suggested between the boys and the girls as to their various interests and abilities. It now becomes necessary to consider more in detail these differences. In the first place it must be borne in mind that the period we are now discussing is that of early adolescence, and assuming that with the girls the onset of puberty is from a year to two years earlier than with the boys, it is probable that the former are in a higher stage of mental development than are the latter. Indeed, a considerable number of the boys may still have not passed the crisis from childhood to youth, while this is not the case to any extent with the girls. We should therefore expect a higher grade of ability from the girls than from the boys, and an examination of the data before us shows clearly that this is the case. When we consider the number of compositions above the third grade we see that in each group of compositions with the exception of the fourth, written a humorous topic, the girls surpassed the boys in inventive power, and in this one instance the difference is less than one per cent. in favor of the boys. When we consider the average grade, we notice that the girls excelled throughout. In formal correct-

ness the girls excelled in every instance. In the various elements contributing to inventive ability the girls likewise excelled, with the one exception of humor, where the boys surpassed the girls by more than eight per cent. It is in the variety and richness of the feeling element that the girls showed the most marked superiority over the boys. This would naturally be expected, if it is true, as has been assumed, that more of the girls than of the boys had entered into their adolescent development. It is to be noticed in the first place that more of the girls' feelings were positive, fewer being neutral, whether we class them under the heads of egoism and altruism, or of pleasurable and non-pleasurable. In altruistic feelings the girls decidedly excelled the boys, and in egoistic feelings they were behind. The pleasurable feelings were nearly twice as numerous with the girls as with the boys, while the unpleasant feelings were less in evidence. The great preponderance of the unpleasant feelings over the pleasant for both sexes is probably to be explained from the fact that the latter are more general, less definite and more difficult to express. It would certainly be an unwarranted conclusion that the painful psychoses were in excess. The positive character of pleasure seems to increase with adolescence, and this would account for the fact that the girls gave expression to pleasurable feelings much more often than did the boys. It is probably significant that the feeling of pride found expression far more often on the part of the girls than of the boys, and that the æsthetic were almost exclusively expressed by the girls.

In imaginative power the girls were superior to the boys in nearly every particular. The one marked exception was in what has been termed the scientific imagination. In the fifth set of compositions the theme making the least demands upon the constructive imagination, "The Adventures of a School Desk," was chosen in considerably greater proportion by the boys than by the girls, but with the theme, "An Original Story," requiring much higher inventive power, the reverse is true. Demanding perhaps the greatest originality of all the themes in the fifth group was the subject, "How the Flowers Got Their Colors." Twenty-one girls wrote on this topic and only four boys. The girls showed greater imaginative power in the theme, "A Fairy Story," than did the boys.

In perceptive ability, also, the girls were superior to the boys. They apperceived much oftener what was "newsy" and interesting in a situation; they described more vividly and accurately, and their sensations on the whole were keener.

In logical power the girls were likewise superior. If we accept the theory that the associational centers do not develop fully until puberty, this hypothesis would offer an explanation

for the girls' superiority in this respect. Doubtless this superiority would be found on further investigation to disappear in the later years of the high school course, when the full force of adolescent development is being felt by the boys.

An analysis of the elements of humor, already discussed, shows that while the boys were superior to the girls in their general apperception of humor, they were inferior in the more subtle forms. The boys showed a higher average in the humorous elements founded on the teasing and bullying instinct and in the farce comedy type. They showed but slight differences from the girls in their apperception for a humorous character or a pun; they were inferior in the perception of the incongruous, the ridiculous and the absurd, and clearly below the girls in their feeling for the more subtle and delicate forms of humor. In one particular they showed a marked superiority over the girls, and that was in the ability to narrate a story with a point. Although the boys succeeded in doing this in a number of instances not one girl was successful.

§ 7. THE RELATION BETWEEN INVENTIVE ABILITY AND FORMAL CORRECTNESS.

While it may be conceded that inventive ability is capable of stimulation, and that spontaneity and originality may be cultivated to a degree, the objection may be raised that this can be done only at the expense of accuracy in writing. It may be urged that the more attention the writer puts on the content the less he is able to put on the form, and that in calling forth spontaneous expression rhetoric and grammar are sacrificed. In replying to this objection it becomes necessary to discuss the relation of inventive ability to formal correctness, as brought out in the study of the five sets of compositions which have formed the subject matter of this paper. Tables from I to X inclusive, contain, as has been said, a tabulation of the grades of formal correctness and of inventive power as these two elements are related to each other in each of the five groups of compositions examined. If we examine these tables, we find that in 51.9 per cent. of the cases the maximum figures in each grade of formal correctness and in each grade of inventive ability coincide, and in a large majority of the cases there is an approximation if not a coincidence. Examining the totals for each grade in the ten tables, we see that with the exception of tables four and six the maximum figures for formal correctness correspond with the maximum for inventive ability. In Table I 55.4 per cent. of the compositions had the same grade in formal correctness and in inventive power; in Table II the per cent. was 39.1; in Table III, 43.8; in Table IV, 41.7; in Table V, 66.8; in Table VI, 60.1; in Table VII, 62.2; in Table

VIII, 65; in Table IX, 47.6; in Table X, 59.7. This gives an average for the ten tables of 54.1 per cent. of the cases in which there was an exact agreement between formal correctness and inventive power. When we further consider that where there was not an exact agreement, there was an approximation in most cases, we can reasonably conclude that there is a close relation between these two elements in written discourse, and that the two are dependent variables. The more important question, however, remains: Is there any direct causal relation between these two elements? Does an increase in formal correctness cause an increase in inventive ability, and does an increase in inventive ability tend to improve formal correctness, or are the variations in these elements controlled by a cause that lies behind them both? The supposition that an increase in formal correctness directly causes an increase in inventive power seems hardly justifiable, since processes contributing to inventive ability precede its expression. It is difficult to imagine how a mere correctness in the expression of a psychic state could in any way influence the state itself. On the other hand may it not be reasonably assumed that the character of an affective, intellectual or conative state determines somewhat the form in which that state shall seek expression, and that if we succeed in stimulating the elements of inventive ability, we shall likewise succeed in improving the mode in which those elements find expression? The present paper, however, does not leave this important problem to mere speculation, but enables us to answer this question somewhat conclusively.

It is to be remembered that the compositions in groups one and two were written for the most part by the same pupils, while the compositions in groups three, four and five were written by another set of pupils. A comparison between the first and the second groups, and between the third, the fourth and the fifth groups, as to the relation between formal correctness and inventive ability, should therefore be of importance. As has already been stated, the second set of compositions showed an increase in inventive power over the first set, both for boys and girls, whether we consider the per cent. of compositions above the third grade or the average grade. There was also a corresponding increase in formal correctness. Since the second set of compositions was intended to stimulate inventive power, and not directly formal correctness, and since these compositions were written primarily to be read in the class and not to be criticised from a grammatical and rhetorical standpoint, it seems fair to assume that the increase in formal correctness was due to an increase in inventive power. If we compare the remaining three sets of compositions written by the boys, we find that there is a progression in each set in inventive power,

which is paralleled by a corresponding increase in formal correctness. When we examine the compositions written by the girls we find that exactly the same thing is true, with the one exception of the average grade for formal correctness in the third and fourth groups. In the latter group the grade is 3.85 against 4.06 for the former. However, when we consider the average of the compositions above the third grade, the increase in inventive power is paralleled throughout by an increase in formal correctness. We therefore seem justified in concluding that stimulation of inventive power tends also to stimulate formal correctness. In other words, if we desire to have a composition well expressed, we should see to it that there is something to express.

CONCLUSION.

Although the facts brought out in the above pages seem to warrant the conclusion that inventive power may be improved and spontaneity stimulated by the teacher directing the pupils' written work along the lines of his fundamental interests, it will doubtless be impossible to achieve the desired result in all cases. Like all mass studies the conclusions reached by this paper do not necessarily apply to each individual, and according to the writer's personal experience there will always be a considerable number to whom they will not apply at all. Most classes in English fall into three divisions. First there are those incapable of any real productive effort. With such it is probably a waste of time to attempt to do more than merely to secure the best formal expression possible. Rhetorical and grammatical correctness is all that should be aimed at in such cases. But there is a second division, who, largely because of previous training in written work, have divorced spontaneity from expression. These should be encouraged to give voice in their compositions to their real thoughts, fancies and emotions. There is a third division who take a genuine pleasure in writing, and they express themselves well because they have something to express. They should be given every encouragement to originality and not be made to feel, as is often the case, that the teacher is a hostile rather than a sympathetic critic.

In composition at least, the same amount and the same grade of work should not be expected of every pupil. Here, if anywhere, individual instruction should be the ideal. We should not check the effort of a dull pupil by demanding an amount of written work that will discourage him, neither should we hold back the bright pupil by bringing him down to the standard of the dull or mediocre. It is advisable to encourage the pupils to write, but not always safe to compel them to write when they have nothing to write about. For this reason daily

themes may be out of place, particularly in the first years of the high school course. Perhaps one formal theme a week is enough to demand of the class as a whole, especially when such themes are supplemented by brief productions intended solely to call forth spontaneity. Correction, while necessary, should be reduced to a minimum. Not every refinement of rhetoric should be emphasized at the start. There are a certain number of gross mistakes that the majority of pupils are sure to make, and these should be dealt with heroically. The experienced teacher knows in advance what they are likely to be. Further, there are mistakes peculiar to certain pupils. A list of such errors should be kept by the teacher, and these faults should be dealt with individually, not discussed before the class as a whole; for such a procedure is not only a waste of time, but opens the way to the evil of negative suggestion. Certain themes should be prepared to be read in the class, and in these the pupils may be allowed to select subjects without specific directions from the teacher. The logical faculty is best cultivated by making the pupil realize that a composition is a unit, developed from a central idea; and this is sure to be no small task with boys and girls fresh from the grammar grades, where the emphasis has been largely on the sentence, and not on the composition as a whole.

Most teachers of composition in the secondary school are teachers of literature as well, and may be able to accomplish much in calling forth originality indirectly. It is but a step between the active enjoyment of a literary masterpiece and invention. To vitally participate in an author's thoughts, feelings and desires; to really see what he describes, and to experience what he narrates make demands of the creative imagination. This active participation in literature the teacher can stimulate, but for the most part only indirectly. It is often the modulation of the voice, the gesture, the expression of the face that helps the pupil to see or feel what pages of commentary and hours of analysis fail to reveal. To leave some things unsaid is an important pedagogical rule. Less time should be spent on textual criticism, and more on developing the pupils' perceptive powers. Often the entire meaning and enjoyment of a literary masterpiece is lost because he fails to perceive. The present study has shown that most pupils of the high school age are sadly lacking in perceptive power, at least when they come to write. Yet with the onset of puberty often comes an increased keenness of the senses, as well as heightened feelings and imagination. It should be the aim of the teacher to make the pupils alive to the realities of the printed page, lest they shall have eyes and see not and ears and not hear.

But it may be objected that this attempt to develop written

work along the lines of originality and spontaneity lacks the definiteness which the long established dry-as-dust methods possess, and if by this is meant the definiteness of turning over the pages of the dictionary, of the constant consulting of the grammar and rhetoric for the violation of logical rules, the criticism is just. There is, however, another and a higher kind of definiteness, a definiteness in the mind of the teacher as to the working of the minds of her pupils, and a definiteness as to her own aims and methods in bringing her instruction down to their apperception. Nowhere is a definiteness of this sort more needed than in the teaching of English. It is biology not thanatology that we seek; the living spirit is superior to the dead form.

But finally it may be said that it is not the business of the school to call forth this spontaneity, and that it is of little importance for the average pupil, who can never expect to be more than a mediocre writer at the best. If we consider the matter carefully, however, we should be convinced that anything which tends toward unreality in our schools is bad. It should be a matter of importance to have the pupil's expression correspond with his thoughts and feelings. If by our instruction we lead the pupil to conceive written language as entirely separated from the reality of his vital experiences, are we not offering a training in sophistry? Such a procedure is not only negatively but positively bad. The question has not only a pedagogical but an ethical bearing as well.

THE VOCABULARIES OF THREE CHILDREN IN ONE FAMILY AT TWO AND THREE YEARS OF AGE.

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The following vocabularies of the three oldest children of Professor W. M. West, professor of History in the University of Minnesota, and the late Mrs. West, were taken as the children were successively two years old in Oct., 1884, July, 1886, and April, 1888. The oldest child was again taken at three years of age. The work was chiefly done by Mrs. West (who had been a High School teacher), who began about a month before each of these birthdays to note down, as far as time and opportunity permitted, all the different words she heard the child use. She then made an alphabetical list of all the words so as to check off reduplications. Proper nouns were not recorded, nor were declensions or inflections unless they were from different stems. As Mrs. West was almost constantly with the child she probably heard most of its vocabulary for the month preceding its second birthday; but both the parents believed that it was impossible with this method to get down all the different words used.¹

The work was done without the knowledge of the few summaries of children's vocabularies published at that time, and was undertaken for the purpose of testing the suspectedly small figures which philological rumor ascribed to children's words. Having by this family study satisfied themselves that their suspicions were justified and that such guesses had largely underestimated the verbal outfit of children, Professor and Mrs. West made no further use of their valuable material. During the years of the preservation of these vocabularies in

¹ Professor West himself adds the following comment. "Mrs. West was almost constantly with the child, but both parents realized that it was impossible with so imperfect a method to get down all the words used. An approximate result was all that was aimed at; and, as will be seen below, no word or form was recorded, if, upon any principle of criticism, it could be left out. For the third year vocabulary in particular Mrs. West was aware that the list was very incomplete, and that with more time for observation and more leisure for recording results, a much larger number of words would have been secured. This list was never regarded by either parent as a satisfactory representation of the child's three-year vocabulary."

the family archives several of the first pages, containing all words beginning with a, b, and c, of Ruth's two-year list have unfortunately been lost. So it must be remembered that in each of the following parts of speech Ruth's two-year old vocabulary does not begin until the letter d. This loss is compensated for in the table by the fortunate fact that her total number of words had been preserved and by the comparisons being made in percentages.

The compilers have classified the vocabularies under the parts of speech and combined them in the following manner. The following list of words, exclusive of those in italics, is the recorded vocabulary of the oldest child, Ruth, at three years. All words followed by "Rh," are those which Ruth also used previously at two years. The few in italics and followed by "*Rh.*" are words used by Ruth at two years but not at three years. All words, whether in Roman or Italic type, which are followed by a Roman "R," are those used by the second child Rodney (boy). His vocabulary is completed by the few words in italics and followed immediately by an Italic "*R.*" which are words used by him and not by Ruth. Similarly all words followed by a Roman "M" are those used by the third child, Margaret, at two years; while words used by her alone, and not by Ruth or Rodney, are in italics and followed immediately by an Italic "*M.*" Thus "doll, Rh. R. M." means that doll was used by Ruth at three and two years, by Rodney and Margaret at two years; "*duck. Rh. M.*" means that duck was used by Ruth at two years, but not at three years, and was also used by Margaret; "*harness R. M.*" was first used by Rodney, also by Margaret afterwards, but not previously by Ruth; "*hail M.*" was used only by Margaret.

NOUNS.

acorn.	backbone.	beauty.
afghan. M.	bag.	bed. M.
afternoon. M.	<i>bank. M.</i>	bedroom.
album.	ball. R. M.	bee. M.
alley.	banana. R. M.	beef.
animal.	banks.	<i>bell. M.</i>
ankle.	barn. R.	berry. R.
apple. R. M.	barrel. M.	bib. R. M.
apple sauce.	basin.	Bible.
apron M.	basket. M.	bicycle.
arm. M.	bath. R. M.	bird. M.
aunt.	bay window.	birthday. M.
	<i>bead. R.</i>	biscuit.
baby. R. M.	beans.	bit.
back. M.	<i>bear. M.</i>	bittersweet.

- blackberry.
 blinds.
 block. R. M.
blanket. M.
 blueberry.
 bluebird.
 bonfire. M.
 board.
 boat.
 bone. M.
 bonnet. M.
book. R. M.
bookcase. M.
 bouquet.
 border.
 boy. R. M.
 bowl. M.
 bow. M.
 bottle. M.
box. R.
 bread. R. M.
 breakfast. M.
 broth. R.
 brother. M.
 brother-in-law.
 broom. M.
 bubble.
 buds.
 bureau.
 buggy.
bushel. M.
 bush.
 butter. R. M.
 butter-cup.
 butter-nut.
 button. R. M.
 button-hole. M.
 butter-plate. M.
 button-hook.

 cage.
 can.
 cake. R. M.
 calf.
 caller.
 camp.
 candy. M.

 cane.
 cap. M.
 cape.
 camel.
 car.
cars. M.
 card. M.
 carpet. M.
 carriage. R.
 cat. R. M.
 cat-tails.
ceiling. M.
 celery.
 cellar. R.
 cent.
 circus.
 cistern.
 chain.
chatterbox. M.
 chair. R. M.
 chalk.
 checkers.
 cheek. M.
 chess.
 cherry.
 chicken. M.
children. M.
 child.
 chip.
 chocolate.
 chin. M.
 Christmas.
 church.
 class.
 cloak. M.
 clock. R. M.
 closet.
 cloth. M.
 clothes. M.
 clothes-pin.
 clothes-line.
 cloud.
 clover.
 coal. M.
 coat.
 collar. M.
 color.

 colt.
 cocoanut.
 coffee. M.
 coffee-pot.
 cookie. R. M.
 cook-book.
 corner.
corn. R. M.
 cork.
 course.
 court-house.
 cousin.
 comforter.
 company.
 cow. R. M.
 cracker.
 cradle. M.
 cranberry.
cranberries. M.
 cream. M.
 crib. M.
 crochet-needle.
 croquet.
 crumb. M.
 crumb-cloth. M.
 crust. M.
 curls.
 curtain. M.
 cushion.
 cup. R.

 daisy.
 damper.
 dandelion.
 darling. Rh. M.
 day. Rh.
 daughter. Rh.
 death.
 deer.
 depot. Rh.
 desk. Rh. M.
 dessert.
 dew.
diaper. Rh. M.
 dictionary. Rh.
dice. Rh.
 dimple.

- dining-room. Rh.
 dinner. Rh. M.
 dirt. Rh. M.
 dish. M.
dishes. Rh.
 dish-pan.
 ditch.
 doctor.
 dog. Rh. M.
 doll. Rh. R. M.
 dollar. Rh.
 domino. Rh. M.
 donkey.
 door. R. M.
doors. Rh.
 door-knob.
 dough.
 dove.
 drawer. Rh. M.
 drawers. Rh. M.
 dress. Rh. M.
 dressmaker.
 drink. Rh. R. M.
duck. Rh. M.
 dust. M.
dustpan. Rh.
 dye.
- ear. Rh. R. M.
 east.
 egg. Rh.
eggs. M.
 elbow.
 elephant.
 embroidery.
 end.
 envelope.
 evening.
 eye. Rh. R. M.
 eyelid.
- face. Rh. M.*
faces. M.
 fan. Rh.
 father. Rh. M.
feather. M.
 fellow. Rh. M.
- fence. M.
 fern.
 fiddle.
 finger. Rh. M.
 finger-nail. Rh.
 fire. Rh. M.
 fish. Rh. M.
 flag.
 fleece.
 floor. Rh. M.
 flower. Rh.
 flower-bed.
flowers. M.
 flour.
 fly. Rh. M.
 folks. Rh.
 food.
 foot. Rh. M.
 forehead. M.
 fork. Rh.
 frame.
 friend.
 frog. Rh.
 front.
 frosting.
 fruit.
 fruit-knife.
 fuchsia.
 fun. Rh. M.
 fur.
- garden.
garter. Rh. R. M.
 garters.
 gate. M.
 gentleman.
 geography. Rh.
 geranium.
 gingham.
 girl. Rh. R. M.
 glass. Rh. M.
 glasses. Rh. M.
 glove.
gloves. Rh.
 gold.
 goose. Rh. M.
 gooseberry.
- greatgrandma. Rh.*
 grandma. Rh.
 grandpa. Rh.
 grape. Rh.
grapes. M.
 gravy. Rh.
 griddlecake. Rh.
 grocer.
 grocery.
 grass. Rh. R. M.
 ground. Rh.
 guitar.
gum. M.
- hail. M.*
 hairpin. Rh.
 hair. Rh. R. M.
 half.
 hammer.
 hammock. R.
 handkerchief. Rh. M.
 hand. Rh. R. M.
 handful.
 handle. M.
harness. R. M.
 harp.
 hash. M.
 hatchet.
 hat. Rh. R.
 hay. R. M.
 headache.
head. Rh. M.
 heaven.
 heel.
 hen. M.
 hiccough. Rh. M.
 hill. R. M.
 high chair. Rh. M.
 hoe.
 holder.
 hole. M.
 home. R.
 honey.
 hour.
 house. Rh. M.
 hood. M.
 hook.

horse. Rh. M.	lion.	<i>mud. Rh.</i>
hops.	<i>lips. Rh. M.</i>	mud-puddle.
husband.	locket.	<i>muffin. M.</i>
	loaf.	mug.
ice. R.	log.	music.
<i>iceman. R.</i>	looking-glass.	mosquito. Rh.
ink. Rh.	lot.	mutton.
institution.	<i>lots. Rh. M.</i>	
iron. Rh.	lounge. Rh. M.	nail.
	lunch.	nap. Rh.
jackstraws.		napkin. Rh. M.
jackstones.	<i>macaroni. M.</i>	napkin-ring. M.
jar.	machine.	<i>name. Rh.</i>
jelly. Rh. M.	mamma. R. M.	neck. Rh. M.
joke.	man. Rh. R. M.	necktie. Rh. M.
jug. M.	ma'm.	needle. M.
	marble.	negro.
key. Rh.	marmalade.	neighbor.
keyhole.	mat.	newspaper.
kindergarten.	match. Rh.	nest. M.
kitchen. Rh. M.	<i>matter. M.</i>	niece. Rh.
kitten.	<i>meal. M.</i>	night. Rh. M.
kitty. Rh. R. M.	meat. Rh. R. M.	nightdress.
knee. Rh. R.	medicine. Rh. M.	nightcap.
<i>knees. M.</i>	melon.	<i>nightgown. Rh. M.</i>
knife. Rh. M.	meeting.	noise. Rh. M.
knot.	mill. Rh.	<i>noon. M.</i>
	milk. Rh. R. M.	nose. Rh. R. M.
lace. Rh.	milkman.	nuisance. M.
lady. Rh. R. M.	minute. Rh. M.	nut.
lake.	mischief.	
lamb.	Miss. Rh. M.	oak.
lamp. Rh.	mitten. Rh.	oatmeal. Rh.
<i>lap. Rh. M.</i>	<i>mittens. M.</i>	o'clock.
leaf.	moccasins.	office.
leaves.	morning. Rh.	oil.
<i>legs. M.</i>	mother. Rh.	oil can.
leg. Rh.	money. Rh. M.	omelet.
<i>leggings. M.</i>	moon. Rh.	<i>orange. Rh. M.</i>
lemon. Rh. M.	mop.	<i>organ. M.</i>
lemonade. Rh.	mouse. Rh. M.	ornament.
lesson.	mouth. Rh. M.	oven. M.
letter. Rh. M.	mouth-organ.	overcoat.
letters.	mouthful.	overshoe.
lily.	mountain.	<i>overshoes. M.</i>
light. Rh. M.	Mr.	oyster.
lightening.	Mrs. Rh.	

pain. Rh. M.	pipe.	road.
pan. Rh.	pitcher. Rh. M.	robin.
papa. Rh. R. M.	place. M.	rocking-chair. Rh.
pail. R. M.	plaything.	M.
page. Rh.	<i>plaster. M.</i>	roast.
pansy.	plate. Rh. M.	roller-skate.
pantry.	plumb. Rh.	rogue. M.
paper. Rh. M.	pocket. Rh. M.	room. M.
paper-rag.	pocket-book.	<i>roof. M.</i>
paper-knife.	poem.	rooster M.
parasol. R.	polish-boots.	rose.
parlor. Rh. M.	pond-lily.	row.
path.	post-office.	rubber. Rh. R.
part.	poppy.	rubbers. M.
<i>party. Rh. M.</i>	potato. Rh. R. M.	rug. M.
<i>pasture. R.</i>	poker. M.	salt. Rh. R.
pattern.	porch.	sand. Rh.
pea. R.	present. Rh.	satchel. Rh.
peas.	pudding. Rh. M.	satin.
peach. Rh.	pumpkin.	saucer. Rh. M.
peanut.	pump. Rh.	sacque. Rh.
peapod.	puppy. Rh.	scarf. M.
pen.	purpose.	scholar.
pen-knife.		school. Rh.
pencil. Rh. M.	question.	schoolhouse. Rh.
penny. M.	quilt.	scissors. Rh. M.
pear. Rh.		seat.
people. Rh.	rabbit. Rh. M.	seed.
pepper. R.	rag-bag.	self. Rh.
peppermint.	rag.	shade.
person.	rake.	shadow. M.
petticoat. Rh.	railing.	shawl. Rh. R. M.
photograph.	railroad.	sheep. Rh. M.
picture.	rain. Rh. M.	sheet.
piano. Rh.	rainbow. M.	shell.
picnic.	rattle. Rh.	shelf.
piazza. M.	raspberry.	shears.
pie. Rh. M.	rat. Rh. M.	ship. Rh.
<i>picture. M.</i>	reason.	shirt. Rh. M.
<i>pictures. Rh.</i>	register. M.	<i>shoe. Rh. R. M.</i>
piece. Rh. M.	rest. Rh.	shoes.
<i>pigs. Rh.</i>	rheumatism.	shop.
pig. R. M.	ribbon. Rh. M.	side. Rh. M.
pillow. Rh. M.	rice. Rh. M.	sidewalk.
pin. Rh. M.	ride. Rh. R. M.	sieve.
pincushion.	ring. Rh. M.	silk.
<i>pills. M.</i>	river. M.	sir.

- sister.* Rh. M.
sled. Rh. M.
sleep. Rh.
sleeve. Rh. M.
slipper. M.
slippers. Rh.
shower.
skin.
skirt. Rh. M.
skies. M.
sky. Rh. M.
smoke. Rh.
snow. Rh. M.
snowball. M.
soap. Rh. M.
sofa.
sofa-pillow.
son.
song.
soup. M.
sound. Rh.
spool. Rh. M.
spot. M.
spoon. Rh. M.
spoonful.
spoon-holder.
spread.
squash.
squirrel.
stairs. Rh. R. M.
stick.
steak.
steps. M.
steep.
stool.
stocking. Rh. M.
stockings. R.
store.
story. Rh. M.
stomach. M.
stone. Rh.
storm.
stove. Rh. M.
straw.
strawberry.
street.
string. Rh. M.
strap.
sugar. Rh. R. M.
sugar-bowl.
summer. Rh.
sunday-school. Rh.
summer-house. M.
sun. Rh. M.
sunset. M.
supper. Rh. M.
suit.
swan.
swing. R.
syrup. Rh. M.
table. Rh. M.
table-cloth. Rh. M.
tack. Rh. M.
tail. Rh.
teacher.
tea. Rh. M.
teapot. M.
teaspoon. Rh.
tea-kettle. M.
tears. Rh.
tear. M.
teeth. Rh. M.
tent.
thanks.
Thanksgiving.
thimble. Rh. M.
thing. M.
things. Rh.
thistle.
thread. Rh. M.
throat. M.
thunder.
thumb. Rh. M.
tiger.
time. Rh. M.
ticket.
toes. Rh.
toad. R.
toast. Rh. M.
tomato.
tongue. Rh. M.
toothbrush.
toothpick. Rh. M.
top.
toy.
towel. Rh. M.
town. M.
tree. Rh. M.
trees.
trouble.
trousers.
trumpet.
trunk. Rh.
trunks.
tub. Rh. M.
tulip.
tumbler.
turnover.
umbrella.
uncle. Rh.
use.
veil.
velvet.
vest. Rh.
vine.
violet.
visitor.
volume.
wagon.
waist. Rh.
wall. M.
wash-rag. M.
wash-woman.
washbowl. M.
washboard.
watch. Rh.
wash-stand.
water. Rh. R. M.
way. M.
ways. Rh.
watermelon. Rh.
water-works.
week.
west.
whole.
wheel. M.
whip. Rh. M.

whiskers. Rh.
 whistle. Rh. M.
 whooping-cough.
 Rh.
 wife.
wind. Rh. M.
 window. Rh. M.
 wing.
wings. M.
 wire.
 woman.
 woodpile.
 wood. Rh. M.
 woodbine.
 woodbox. Rh.
 word. M.
 work. Rh. M.
world. M.
 woods.
 woodpecker.
 wool.
 workman.
wrapper. Rh. M.
 wreath.
 wren.
 wrist.

 yard.
 yarn. Rh.
 year.
 yolk.

 zinc.

VERBS.

ache. M.
 act.
 am. M.
 answer.
 are. M.
 ask. M.

 bake.
 bark.
 been.
 begin.

believe.
bet. M.
bit. M.
 bite. M.
bleed. M.
 blow.
 borrow.
 bother.
 braid.
break. M.
 bring.
 brush. M.
 build. M.
 bump. M.
 burn. M.
 buy. M.
 buzz.

 calls.
 call. M.
 can. M.
 care. M.
 carry. M.
 catch.
 change. M.
 chew. M.
 choke.
 choose.
 clap.
 comb. M.
 come. R. M.
 cook. M.
 cool. M.
 cough. M.
 count. M.
 could.
 cover. M.
 crack.
 crawl.
 creep.
 crochet.
 cry. M.
 curl.
 cut. M.

 dance. Rh.
 die.

do. Rh. M.
don't. Rh. R.
 draw.
 drive.
drop. Rh. M.
 drown.

 eat. Rh. M.
 embroider.
 enjoy.
 excuse. M.
 explain.

 fall. Rh. R. M.
 fasten.
 feed. Rh. M.
 feel.
 fight.
 fill.
 find. Rh. M.
 fit.
 fix. Rh.
 fly.
 fold.
 follow.
 fool.
 forget.
freeze. M.
 frighten.
 fuss.

 get. Rh. M.
 give. Rh. M.
 go. Rh. R. M.
got. Rh.
 groan.
 grow.
 grunt.
 guess. Rh. M.

 hang.
 have. M.
 hear. Rh. M.
 help. Rh. M.
 hide.
 hit. Rh. M.
hitch. R.

hold. M.	must. Rh. M.	shave.
hop.		sharpen.
hug. Rh.	need. M.	shove.
hurry.		shut. Rh. R. M.
hurt. Rh. M.	paint. M.	<i>shine. Rh.</i>
hush.	pat. Rh. M.	show. Rh. M.
	pet. Rh.	sift.
is. Rh. M.	pick. Rh. M.	sing. Rh. M.
	pile.	sink.
jump. Rh.	pinch. Rh.	sit. Rh. R. M.
	<i>play. Rh. M.</i>	slam. Rh.
keep.	poke. M.	<i>slap. Rh.</i>
<i>kick. M.</i>	pound. Rh.	skate.
kiss. Rh. R. M.	<i>pour. Rh. R.</i>	slide. M.
<i>kneel. M.</i>	prick. Rh.	<i>slip. M.</i>
knit.	pull. Rh. M.	smell. Rh. M.
knock. M.	push. Rh. M.	smile.
know. Rh. R. M.	put. Rh. M.	sneeze. Rh. M.
		speak. M.
laugh. Rh. M.	quack. Rh.	soil.
lead. M.		squeak.
leave.	raise.	squeal.
learn. M.	reach. Rh.	spank. Rh. M.
left.	read. Rh. M.	<i>spill. Rh. M.</i>
let. Rh. M.	remember. M.	split. Rh.
lie. Rh. M.	rise.	<i>spatter. Rh.</i>
like. Rh. M.	roar.	stand. Rh. R. M.
lighten.	rock. Rh. R. M.	stay. Rh. M.
live.	roll. Rh. M.	steal.
listen.	rub. Rh. R. M.	step. Rh.
lock.	run. M.	stir. M.
look. Rh. M.		sting. M.
lose. M.	scare.	<i>stop. Rh. M.</i>
love. Rh. M.	say. Rh. M.	<i>stretch. Rh.</i>
	scold.	study.
make. Rh. M.	scrape.	<i>suppose. M.</i>
mark.	scratch. Rh. M.	swell.
mash.	send.	sweep. Rh. M.
may.	scrub. Rh.	swallow.
<i>mean. M.</i>	<i>seem. Rh.</i>	
meet. Rh.	<i>see. Rh. R. M.</i>	take. Rh. M.
mend. M.	set. M.	talk. Rh. M.
mew. Rh.	sell.	taste. M.
might.	sew. Rh. M.	teach. M.
mix.	shall. Rh. M.	<i>tease. M.</i>
mind. M.	should.	tear. Rh. M.
move. Rh. M.	shake. M.	tell. M.

<i>thank.</i> <i>M.</i>	ADJECTIVES.	dusty. <i>M.</i>
think. Rh. <i>M.</i>		early.
tie. <i>R. M.</i>		easy.
tick.	able.	else. Rh. <i>M.</i>
tickle. Rh. <i>M.</i>	afraid. <i>M.</i>	empty.
throw. Rh. <i>R. M.</i>	alike.	<i>either. M.</i>
<i>tip. Rh.</i>	all. <i>R. M.</i>	enough. Rh. <i>M.</i>
<i>touch. M</i>	alone.	every. <i>M.</i>
treat.	another. <i>M.</i>	
trot. Rh.	any. <i>M.</i>	fat. Rh. <i>M.</i>
try. Rh.	asleep. <i>M.</i>	few.
tumble. <i>M.</i>	ashamed.	first.
turn. Rh.	astonished.	first-rate.
tweet.	awake. <i>M.</i>	five.
visit.	bad. <i>R. M.</i>	four.
unbutton.	barefoot.	<i>frightened. M.</i>
understand. <i>M.</i>	beautiful.	full.
undress. Rh.	<i>better. M.</i>	funny. Rh. <i>M.</i>
unlock.	<i>best. M.</i>	fussy.
use.	big. <i>R.</i>	German.
	bitter.	glad. <i>M.</i>
	black. <i>R.</i>	<i>going. Rh.</i>
wait. Rh. <i>R. M.</i>	blue. <i>R.</i>	good. Rh. <i>R. M.</i>
walk. Rh. <i>M.</i>	blind.	<i>gone. Rh.</i>
wake. Rh.	both. <i>M.</i>	gray.
want. Rh. <i>M.</i>	<i>broken. M.</i>	great.
was.	brown.	green.
wash. Rh. <i>M.</i>		
wear.	careful. <i>M.</i>	<i>hard. Rh. M.</i>
welcome.	cheap.	heavy. Rh.
went. Rh. <i>M.</i>	clean. <i>M.</i>	hot. Rh. <i>R. M.</i>
whisper.	cloudy.	hungry. Rh.
will. Rh.	cold. <i>M.</i>	industrious.
wind. Rh. <i>M.</i>	colored.	kind.
wink.	comfortable.	
<i>wipe. Rh. M.</i>	cross. <i>M.</i>	lame.
wish. Rh. <i>M.</i>	cunning. <i>M.</i>	<i>last. M.</i>
wonder. Rh.	cute. <i>M.</i>	lazy.
<i>won't. Rh.</i>	dark. Rh. <i>R. M.</i>	late.
would.	deaf.	<i>like. M.</i>
write. Rh. <i>M.</i>	<i>deaf and dumb. M.</i>	little. Rh. <i>M.</i>
	dear. Rh. <i>M.</i>	lonesome.
yawn. Rh.	dirty. Rh. <i>M.</i>	long. <i>M.</i>
	<i>done. Rh.</i>	low.
	dry. Rh. <i>M.</i>	lovely.
	dumb.	loud.

mad.	sleepy. Rh. M.	awful. M.
many. M.	<i>slippery. M.</i>	badly.
mistaken.	some. Rh. M.	<i>back. R.</i>
much. Rh. M.	sore. Rh. M.	certainly.
muddy.	sorry. Rh. M.	down. Rh. R. M.
more. R. M.	sour. Rh.	ever.
most.	soft. Rh. M.	everywhere.
	sticky. Rh.	far. M.
	sweet. Rh. M.	fast.
narrow.	strong.	forth. Rh.
naughty. Rh. R. M.	straight.	<i>hardly. M.</i>
near.	still. Rh. M.	here. Rh. M.
new. Rh.	stupid.	high. Rh. M.
next. Rh.	smart. Rh.	how. Rh. M.
neat. Rh.	smooth.	just. M.
nice. Rh. M.	<i>snowy. M.</i>	maybe. M.
noisy.	sure. M.	never. M.
Norwegian.	<i>surprised. M.</i>	nicely.
		no. Rh. R. M.
old. Rh.	thirsty.	not. Rh. M.
one. Rh. R. M.	thick.	now. Rh. R. M.
open. Rh. R. M.	tin.	off. Rh. R. M.
other. Rh. M.	tidy.	<i>once. M.</i>
overhead.	two. Rh. R. M.	<i>only. M.</i>
own. Rh. M.	tight. M.	over. Rh. M.
	tired. Rh. M.	out. Rh. M.
past.	three. R. M.	outside.
poor. Rh. M.		partly.
<i>precious. M.</i>	warm. M.	perhaps. Rh. M.
pretty. Rh. M.	wet. Rh. R. M.	quick. Rh.
purple.	well. Rh. M.	quite. Rh.
	white. Rh.	<i>really. M.</i>
quiet. Rh.	whole.	slow. Rh.
	wide.	so. Rh. M.
rather.	wise.	sometime.
ready. Rh.	woolen.	<i>sometimes. M.</i>
<i>real. M.</i>	<i>wrong. Rh.</i>	somewhere. M.
<i>red. R.</i>	yellow. Rh.	softly.
right. Rh. M.		soon. Rh. M.
ripe.		surely.
rotten.		then.
<i>round. R.</i>		there. Rh. M.
	almost.	too. Rh. M.
sharp.	along.	to-day. Rh. M.
short.	again. M.	to-night.
sick. Rh. M.	anywhere. M.	<i>together. Rh.</i>
silver.	<i>anyway. M.</i>	<i>to-morrow. M.</i>
	away. R. M.	

ADVERBS.

undoubtedly.
up. Rh. R. M.
very. Rh. M.
when. Rh. M.
where. M.
why.
yesterday. Rh.
yes. Rh. R. M.
yet. Rh. M.

PRONOUNS.

anybody. M.
anything. M.
everybody.
everything.
he. M.
his. M.
him. M.
her. M.
herself. M.
himself. M.
I. Rh. M.
it. Rh. M.
me. Rh. M.
my. Rh. M.
myself. M.
our.
she. M.
somebody. Rh. M.
someone.
something. Rh. M.
their.

they. M.
this. Rh. M.
that. Rh. M.
these. M.
those. Rh. M.
them. M.
themselves. M.
who. Rh.
us.
what. Rh. M.
which.
we. M.
you. Rh. M.
yourself. M.

PREPOSITIONS.

about. M.
after. M.
around. M.
at.
before. M.
behind.
beside. M.
by.
for. Rh. M.
from.
in. Rh. R. M.
inside.
of. Rh. M.
on. Rh. R. M.
to. Rh. M.

through. Rh. M.
under. Rh. M.
with. Rh. M.

INTERJECTIONS.

goodbye. Rh.
goodnight. Rh.
goodmorning.
holloa. Rh. M.
hurrah. Rh.
oh. Rh.
peek-a-boo. Rh.
please. Rh. R. M.
thank you. Rh.
whoa.

CONJUNCTIONS.

and. R. M.
as.
because. M.
before.
if. M.
or. M.
though. M.
until.
while. Rh. M.

ARTICLES.

a. M.
the.

The following table gives a statistical summary and percentage comparisons of each of the four vocabularies of the words used by each child exclusively, of the words used by Ruth and Margaret in common, and of words used by Ruth at two years but not at three years.

The first interest in the table is the larger number of words in the two year old vocabularies of the two girls, 614 for Ruth and 578 for Margaret, than has usually been credited to children and the near approximation of these results to our own experience and study.¹

¹As published in our study on "The Vocabularies of Three Children of one Family to two and a half years of age," in *Psychological Studies* by Harlow Gale, July 1900, pp. 70-118, also printed separately. See also the letter of Milicent Shinn on Vocabularies in the *Child-Study Monthly* and *Journal of Adolescence*, April 1901, pp. 398-401.

	Ruth, 3 yrs.	Ruth, 2 yrs. from d.	Rod- ney, 2 yrs.	Marg. 2 yrs.	Ruth, at 2, not 3.	Ruth, at 2, and not Marg.	Rod. alone.	Marg. and not Ruth at 2.	Ruth, 2, and Marg. from d.	Marg. Vocab. from d.
Nouns	675 57.4%	232 53.2%	69 60%	293 50.7%	35	88	6	79	134	221
Verbs	238 20.2%	99 22.7%	17 14.8%	129 22.3%	16	32	1	32	68	100
Adjectives	141 11.9%	49 11.2%	17 14.8%	69 11.9%	4	17	1	18	34	52
Adverbs	53 4.5%	27 6.2%	8 6.9%	38 6.6%	1	6		12	21	33
Interjections	10 0.8%	8 1.8%	1 0.9%	2 0.3%		6			2	2
Pro-nouns	33 2.8%	12 2.7%		27 4.6%		1		14	11	25
Prepo-sitions	17 1.4%	8 1.8%	2 1.7%	13 2.2%					8	8
Conjunc-tions	7 0.6%	1 0.2%	1 0.9%	6 1%				3	1	4
Articles	2 0.1%			1 0.1%						
Total	1176	436 614 Total	115	578	56 12.8%	150 34.4%	8 7%	158 35.5%	279 64% of Rh. 62.7% of M.	445

With the additions of proper nouns and of *all* inflections and declensions (not merely those from different stems, as was Professor and Mrs. West's rule), together with the increment which would probably have been found by the additional method of taking down all the words spoken during a day, the totals would have been brought up to very near our estimate of 700 words as a typical vocabulary of a two year old child.¹ (See our p. 101). The total of the boy, Rodney, the second child, of 115 words is evidently unusually low, being less than for any other reported boy except Preyer's.

¹Judging from the proportion of proper nouns and plurals (the possessives and verb inflections from the same stem form no appreciable amount) in the two year old vocabularies of our second and third children,—respectively 17% and 12%,—an increase of 15% would make a probable addition of 92 words to Ruth's and 87 words to Margaret's two year old vocabularies. Professor West, however, is inclined to believe that with their very large circle of relations and friends his children's proper nouns would have been much larger than this estimate.

The nearly doubling of Ruth's vocabulary during the third year, 614 to 1,176, instead of during the first half of the third year, as we found, is somewhat and perhaps fully accounted for by the probably increasing proportion of words which were missed by their recording method as the vocabulary so greatly increased. (See Professor West's note on p. 422.)

The proportion of the vocabularies among the parts of speech add in general further evidence for Tracy's well-known table (see *Psychology of Childhood*, 5th Ed., p. 145), except that the nouns all run lower than his 60%, which deflection is balanced by a higher proportion of verbs and adjectives.

The very large proportion of words used by each of the girls exclusively, over one-third of their entire vocabularies, (the boy's vocabulary is too small to be considered in this regard), is most interesting. For, as both girls grew up in practically the same environment and were not very dissimilar in temperament and mental equipment, this is similar to the surprising result we found in our own two younger children and in the two older girls of Dr. E. S. Holden (see our pp. 110-112). Such a fact adds more evidence, it seems to us, to our inference as to the ease by which words are acquired through the pleasure-pain element of the word-sound forming the motor-speech association largely unconsciously. (pp. 114-116.)

STUDIES OF INDIVIDUAL CHILDREN.

Reported by G. E. PARTRIDGE,
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The facts for these studies were gathered from a group of about eighty children in the intermediate department of the Mankato State Normal School. The primary object was to get material for class work in individual child study, but this has led on to other interests in the material, and we are now trying to make as complete a study of the mental and physical differences of this group of children as the circumstances will allow.

The data already gathered consist of:—

(1) The results of a series of written lessons that were introduced into the regular language work of the children, and that include most of the studies made by Barnes and his students, besides some new ones of like nature, devised to bring out other mental traits.

(2) A collection of dated specimens of the regular school work of the children. For this purpose a large envelope is kept for each child, and into it is dropped anything that seems to be worth preserving. Thus far we have good collections of work in drawing, spelling, language, arithmetic, and history, with an occasional valuable observation from the teacher.

(3) Systematic observations, including a study of the children by a method adapted from the Bertillon system; a study of movements, habits, character, and temperament; mental traits as shown in class work, play; notes on health, attendance, home conditions, etc.

(4) Teacher's reports of the children; estimate of the mental capacity; incidental observations.

(5) A few tests and measurements that have been made upon the children individually.

One method has proved especially helpful in gathering material for a first survey of an individual. It has also been serviceable as an approach to psychological work in class.

A moderate sized dictionary was read through, and all words that can be used in describing characteristics of children mental and physical were culled out. Synonyms and unusual words were eliminated, and the remainder were classified roughly. A blank that was prepared by this method is given below.

CHILD STUDY OUTLINE.

This blank calls for a description of a child largely in terms of adjectives. Underline all terms describing qualities that the child under observation DISTINCTLY possesses. Underline twice if you think the quality is present in a striking or unusual degree.

Name of child.....Sex....Grade....Age..Nationality.....

Attendance: regular, irregular? Home conditions: good, poor? Health: good, poor? muscular strength: good, poor? Is the child tall or short (for his age), stout or slender, fleshy or thin, good looking or plain looking, well formed or poorly formed?

CHARACTER. Is the child good-natured, agreeable, well-disposed, contented, too good-natured, over-social, ill-natured, ill-disposed, disagreeable, irritable, sensitive, revengeful, jealous, complaining? Generous, obliging, selfish, disobliging? Affectionate, sympathetic, lacking in affection, cruel, a tease, a bully, over-affectionate? Obedient, disobedient, balky, willful, "tough," over-docile? Honest, frank, truthful, trustworthy, self-respecting, dishonest, sly, untruthful, without self-respect, mischievous, over-conscientious? Modest, confident, conceited, bold, proud, bragging, timid, bashful, babyish, self-depreciating? Earnest, ambitious, serious, cheerful, frivolous, "funny," over-talkative, a giggler, sad, over-anxious? Energetic, calm, self-controlled, quiet, nervous, excitable, emotional, lacking in self-control, restless, lifeless, lacking in energy? Refined, coarse, neat, untidy, over-fastidious, polite, impolite?

IN MENTAL WORK. Is the child industrious, lazy, patient, impatient, persistent, easily discouraged, attentive, inattentive, intense, listless? Quick, accurate, thoughtful, careful, slow, inaccurate, thoughtless, careless? Original, a memorizer, retentive, forgetful?

IN MANUAL WORK (*e. g.* drawing) Is the child accurate, skillful, quick, neat, quiet, careful, inaccurate, awkward, slow, untidy, noisy, careless? Are the child's larger movements (as in walking) quick, graceful, slow, awkward?

CLASS STANDING. Arithmetic: good, poor? Language: good, poor? Geography: good, poor? Nature Study: good, poor? History: good, poor? Reading: good, poor? Music: good, poor? Drawing: good, poor?

IN PLAY. Is the child rough, active, quiet, retiring, lifeless?

Describe in detail (on the back of the blank) any marked peculiarity of the child; any unusual ability or disability, mental or physical. Specify any bad habit. Remark upon anything else of interest in regard to the child.

Date.....Teacher.

This method has the advantage that the judgments that it calls for are not analytic, but are such as have grown up in the practical life.

With this blank we have collected character sketches of eleven hundred children.

OBSERVATIONS ON THE MOUTH TEMPERATURE
OF SCHOOL CHILDREN.

IONE M. PRESCOTT.

These observations were made upon 71 children, ranging in age from 9 to 16 years, and in the fourth, fifth and sixth grades.

Observations were always made at the same hour 1.30 to 2.15 P. M. Nearly all the children were well accustomed to similar experiments.

Two series of observations were made and the mean temperature for all (144) observations was 99.2° . These are distributed as follows:— 98.6° eleven; 98.7° twelve; 98.8° three; 98.9° seven; 99.0° five; 99.1° thirteen; 99.2° twenty-two; 99.3° seven; 99.4° fifteen; 99.5° five; 99.6° five; 99.7° seven; 99.8° five; 100.0° six; 100.2° one; 100.4° one; 100.5° one.

Comparison of the boys and the girls shows a clear difference. The mean temperature of the boys is 99.2° , and of the girls 99.1° , a difference that appears for all ages, with the exception of two.

By separate years the figures are: nine and ten years, 17 cases, mean 99.1° ; boys 12 cases, mean 99.2° - 99.3° ; girls five cases, mean 99.1° .

Eleven years 24 cases, mean 99.2° ; boys 11 cases, mean 99.4° ; girls 13 cases, mean 99.1° .

Twelve years 23 cases, mean 99.2° ; boys 14 cases, mean 99.3° - 99.4° ; girls 9 cases, mean 99.0° .

Thirteen years 28 cases, mean 99.1° ; boys 16 cases, mean 99.0° ; girls 12 cases, mean 99.1° .

Fourteen years 24 cases, mean 99.0° ; boys 12 cases, mean 99.0° - 99.1° ; girls 12 cases, mean 98.9° - 99.0° .

Fifteen, sixteen, seventeen years 28 cases, mean 99.2° ; boys 21 cases, mean 99.2° ; girls 7 cases, mean 99.2° - 99.3° .

The evidence of these cases is to show that on the whole the temperature of the girls is lower than that of the boys, that there is a period of lower temperature extending from 12 to 14 in the girls, and from 13 to 15 in the boys. At thirteen the temperature of the boys is lower than that of the girls.

The 144 cases 90 boys, 54 girls fall into groups as follows: 98.6° - 98.9° inclusive, 18 boys, 14 girls; 99.0° - 99.2° ; 34 boys 26 girls; 99.3° - 100.5° ; 38 boys, 4 girls. A much larger proportion of boys appear among the high temperatures, and the variability of the boys is decidedly greater.

In the two series there is considerable variation, comparing the records of the same individual in both; the variability amounts to $.3+^{\circ}$ and is due to various causes. In order to determine, if possible, whether any of the differences were constant, another series of observations was made upon two groups of children. The first contained ten that stood among the highest in both previous tests and the second, seven of the lowest. The mean temperature for the highest group as found by the third test was 99.6° , the mean temperature of the second group was 98.7° .

Only one individual fell into a different class on the third

trial. The evidence is strong that individual differences are constant. Some of this individual difference, but not all of it, is apparently due to age.

No child of the low temperature group was marked excellent in class standing by the teacher; three were marked good; among the high temperature group all but two were marked either excellent or good. Of course many more experiments are needed to confirm these observations, but some of the results are too clear to be entirely the result of accident.

A TEST OF SUGGESTIBILITY OF CHILDREN.

PETRA SUNDT.

This test was made by a modification of the method used by Binet. The apparatus consisted of 12 cards, 13 cm. by 5cm., each having longitudinally in the center a line; the lines were of the following lengths, in millimeters: 12, 24, 36, 48, 60, 60, 60, 60, 60, 60, 60, 60. The test was made with the children singly. A paper 28 by 21 cm., ruled lengthwise with faint lines, was placed before the child and he was directed to trace on these lines one under the other, the length of the lines on the cards as they were shown to him one by one in the order given above. The model line was held before the child until his copy was completed, and he was allowed to change his line if at the first attempt he was not satisfied with it. Seventy-seven children ranging in age from 9 to 16 years were tested; suggestibility was shown in all cases, but varying in degree, and in type. Some, accepting the suggestion completely, made each line a little longer than the last; in one case the last line extended the entire length of the paper, 28 cm. Others increased the lines by long steps, then began again with a shorter line when the copy obviously exceeded the model line, then continued to increase the lines as before. A few followed out the suggestion that was offered by the first correction, and continued to decrease the lines, one after another to the end.

The average effect of the suggestion can be stated by throwing all the lines into a composite curve.

This gives lines of the following lengths 13.0, 25.4, 37.7, 51.7, 66.5, 70.3, 68.1, 68.6, 69.1, 71.0, 69.5, 69.6.

As shown by this average curve, the child makes two corrections by observing the model lines, but after each again takes up the suggestion.

The amount of suggestion was found by taking the error in the lines from the sixth to the twelfth, and dividing these results into seven classes numbered I-VII. The number of lines

in the child's paper that exceeded the line above it, beginning with the sixth, was also recorded and the sum of these two numbers was taken arbitrarily as the index of suggestibility. These results correspond very closely with judgments made by simple inspection of the curves.

No difference was found between boys and girls; the average index was 7.7+ for each.

Age is evidently a factor in the suggestibility. The averages were: nine years, 7.2; ten, 7.8; eleven, 8.6; twelve, 7.7; thirteen, 7.3; fourteen, 7.5; fifteen and sixteen, 8.2. The averages by grades, are: fourth, 8.7; fifth, 8.8; sixth, 6.5.

Though the numbers are few, the noticeable increase in suggestibility up to the age of eleven and then the decrease to fourteen, is probably too regular to be without meaning. A study of the eight most suggestible children, as compared with the eight least suggestible, shows no marked correlations of any kind either as to age or classroom ability. None of the most highly suggestible children are in the lowest grade and the highest grade furnished but one case of a child with a very low index of suggestibility.

The assumption is that there are at least two factors at work in the judgments required by this test, that a certain kind and amount of intelligence is required to appreciate and act upon the suggestion; that another quality of mental action prevents the suggestion from entirely overruling the sense impressions; that these two qualities exist in all kinds of combinations making correlations impossible in a small number of cases.

These tests and others of the series demonstrate to the minds of the workers the value of tests, carefully made, upon small numbers of children, in giving clues to tendencies, that can be confirmed by larger studies or by repetition upon other small groups. Much of the labor that has been expended upon mass studies, in which the test failed to work because of some unforeseen misconception on the part of the children, or some flaw of method, might have been avoided by preliminary study of small groups of children, a method by which much of the pathfinding work in individual child study must be done.

THE PEDAGOGY OF JESUS.

By G. HAROLD ELLIS, Fellow in Clark University.

INTRODUCTION.

The influence of Jesus upon the lives of men is one of the wonders of history. What gave this humble Galilean peasant this power has been the theme of discussion ever since his day.

An easy answer is found in theology in that "he who spake as never man spake," whose words came "with authority and not as the Scribes," and whose healing words reached to the depths of man's life and penetrated the tomb, could be no less than God incarnate; and hence it is presumption to penetrate the veil of mystery cast over his life.

The skeptic answers the question by telling us that great men have always been deified by their devotees, and we are staggered by the array of proof he brings before us.

Both of these answers are unsatisfactory. Grant that Jesus were God himself, he must conduct himself so as to be understood by common mortals, and thus the manner of approach to men is still a legitimate problem for study.

The mythical theory may be true but that does not tell us how Jesus got the influence over men such as to cause them to deify him. The success of Christianity depended upon something more than the preaching of a miracle-working God-man, and that *something* must be sought for in the method and teaching of Jesus. The solution of the problem must then be in Jesus as a *teacher*. All the theological speculations are but the evidence of the profound impression Jesus made on his hearers. The psychological fact remains, whatever interpretation is given to the theology or mythology—as one chooses to call it. It is not the multitude of words but the *fact* behind them.

That Jesus was a teacher has never been recognized as it ought in educational literature, lives of Christ and theology. Educational works have ignored him, lives of Christ have degraded him, art has made him a pathological specimen, and theology has made him a metaphysical abstraction. Thus he has been removed from the real life among men and well may another Mary lament, "They have taken away my Lord and I know not where they have laid him."

A healthy sign of a change is in the much abused "Back to Christ." Interest is centering not so much on what the New

Testament writers have to say about him as in what Jesus has to say about life and its problems. Recent writers on social problems have generally made an appeal to the teaching of Jesus.¹

Jesus was a great personality. Great movements have always been led by great men. Men live in the memory of posterity because there was something in their life that commands its interest. That Jesus as a man was supremely great has not been recognized in the church so much as among "outsiders"—perhaps because the divine had so overshadowed the human that it was not seen.

I. THE METHOD OF JESUS.

1. *The Calling and Training of his Disciples.*

Shortly after the beginning of his ministry, Jesus collected a little band of disciples. Of their call there are two versions:—

(1) Mt. 4:18-22 and Mk. 1:16-20 give the call of Peter, Andrew, James and John just after the beginning of the Galilean ministry.

(2) Lk. 4:1-11 puts the call at a later date and gives an altogether different account of the event.

Instead of helping matters John (1:35-41) complicates matters with a third account in which Andrew, Peter, Philip and Nathaniel are called while Jesus is at the baptism of John. Mark and Matthew as representing the older tradition are to be followed. They know nothing of John's account and Luke's is irreconcilable.

That Jesus made a careful study of his man before he called him, we have every reason to believe. He felt he had a great work to perform and that much depended upon the character of the men he chose to assist him.

Nothing is more remarkable than the way in which Jesus almost impressed desirable men into his service, and turned away those he saw to be undesirable, however anxious they were to follow him (Mt. 8:18-22).

This ability to read men at a glance, while exaggerated in John, is the key to his wonderful success, and shows that the years spent as a Nazareth carpenter were improved by the study of men. But with all his insight Jesus made one mistake—in Judas.

We are not to take Lk. 6:12-16 as evidence that Jesus chose his disciples all at one time. The same call that was given to the Galilean fishermen was given to others throughout the course of his ministry whenever he saw a young man of promising usefulness (Mt. 8:19; 9:9; 19:21 and Lk. 9:57).

¹Peabody: Jesus Christ and the Social Question.

Even if there were but twelve disciples there is no good reason for supposing that the number was complete before the close of his ministry, and it seems more likely that all who were called were taken into the number of the disciples and those whose names are mentioned are the more prominent ones, while the number twelve is due to the artificiality of the Apostolic church which took special delight in making all of Jesus' acts symbolical. The lists of the Twelve differ widely showing that there was some difference of opinion as to whom the list should include.

Keim has made the suggestion that Jesus chose young men in their later teens, and though unsupported by most writers on the subject, there are several reasons for supposing this to be the case:—

(1) The man called in Lk. 9:61 certainly was a young man that had not left his childhood home, for he betrays his youth in his desire to bid his parents farewell. An incident that shows the impulsiveness of youth is that of the rich young ruler (Lk. 18:18-30, Mk. 10:17-31, Mt. 19:16-30).

(2) The first four disciples had not left their childhood home. They seem not to have owned the fishing outfit but worked under the supervision of their father, who was not too aged to engage in this laborious work, for when called by Jesus they left all and followed him.

(3) The duty of marriage and raising a family gives added weight to this view. The Jews regarded children as God's richest blessing, and to be without a son was to be branded as accursed of God. The shrinking from parenthood so common to-day was totally unknown among them. Consequently, we must expect that the disciples would have been married had they been old enough or had they been long at the marriageable age.

Peter who appears as a married man, seems to have but recently become so, as he had no property to look after before he followed Jesus. He must have been the oldest of his disciples as he always appears as their spokesman.

(4) The universal tradition holds John to have been much younger than the rest of the disciples. This tradition would be worthless but for the fact that we have historical evidence that John lived till about the year 100. Tradition in regard to the other disciples' ages is less satisfactory, so whatever data the New Testament gives us or that can be derived from probabilities, must guide us here.

(5) Jesus had before him the example of the great Doctors of the Law who were ever on the alert for promising young men. The great Hillel considered it a sin to be unaccompanied by youths with whom to talk on the Law. The Pirqa Aboth, representing the thought of the great teachers of Jesus' time,

opens with the command to "raise up many disciples and make a fence to the Torah." Thus the budding youth of Judea, who were considered the guardians of the Law, were chosen by Jesus to do away with it.

The Book of Proverbs, representing the wisdom of some two or three centuries before, was the standard of training in the days of Jesus. The hoary head is praised (ch. 16:31), to learn "wisdom," the child must go to the "wise" (ch. 5:13), the progress of the pupil is the teacher's delight (ch. 12:15, 16). In such an atmosphere the course of Jesus in calling young men would be the the most natural thing in the world.

(6) By far the most suggestive thought is found in the example of Socrates's love for the youth of Athens. Nothing gave him keener joy than to be with these youth who were the glory of Athens, and to talk with them on the great themes that were of interest to their budding manhood. This most interesting lesson of history has become even more interesting under the light of recent studies in adolescence, and shows the possibilities that are contained in this critical period of life that before had been undreamed.

(7) These young men were free from bias that older men would have had, and were unspoiled by the unproductive education of the times.

(8) Adolescence is the age of ideals, when the best motives of life are at the flood tide. In his lectures on adolescence, Dr. Hall has commented on the high ethical character of college graduation essays. This period of adolescence is the age of religious feeling as all reports show. Again it is the age of hero-worship.

The heroes of the world have been made and preserved in the nursery tales of a nation. Dr. Dawson's study of "Children's Interest in the Bible,"¹ and Mr. Bell's article on "The Teacher's Influence"² are extremely suggestive of the ideals of childhood and the influence of adults upon the child's ideals.

Mr. Bell's report shows the greatest influence came, for boys, from 16-18; for girls, 14-16. The moral influence predominates. There is evidence of an intense longing in the pupil to be loved and the ready response of the pupil to the teacher interested in her pupils is shown by the fact that 68% of the men and 61% of the women reported the most good gained from teachers they loved.

This is very suggestive of the influence of Jesus upon his disciples. He called these young men from all home ties (with few exceptions) and fastened their love upon himself,

¹ *Ped Sem.*, VII, pp. 157-178.

² *Ped Sem.*, VII, pp. 492-525.

and became to them a spiritual father and mother. How well he succeeded in binding them to him by their altruism, religious impulses, idealism and love, history speaks in unmistakable terms.

The possible method by which Jesus sowed the seed of his doctrine upon the virgin soil of their loving, plastic minds, is full of suggestions as to our present methods of education. These young men accompanied Jesus in his ministry and were taught by the object lesson of his life and work. Probably they were left very much to their own thought, Jesus adding a word now and then as the occasion demanded. He lived his own life and did his own work, leaving his disciples to interpret him. We can imagine Jesus going his way, deep in thought, and followed by his disciples who talked about the experiences recently passed through, of the reception they were likely to receive in the next town, or of the things they saw by the way. All this must have been carefully followed by Jesus who frequently asked what they were discussing, and by a pregnant saying or parable suggested by the trend of thought, he drove home the truth he wished them to receive.¹ Often he rebuked them for their lack of insight and enthusiasm. The confession of Peter at Cæsarea Philippi was the "final examination" before the Jerusalem trip that Jesus saw would mean so much to him and his cause, and we can well imagine the satisfaction this confession gave to Jesus concerning the success of his training.

The parables of the Growth of Grain, the Mustard Seed and the Leaven may all be taken as the expression of the method of Jesus with his disciples. To-day the hot-house, forcing methods are all-important in education. One of the present day fallacies of the Anglo-Saxon race is that all is a failure that does not yield immediate results. If Evolution has emphasized anything by its almost infinitely slow methods, it is this. But Jesus had absolute faith in human nature, despite later dogmas on total depravity. Given good seed and proper soil, results were as sure in the spiritual world as it is in the natural world.

2. *The Form of the Teaching of Jesus.*

From the Synoptic Gospels we learn that Jesus gave not long discourses, but short pregnant sayings and parables. Matthew has given us the long sermon on the mount but from a comparison with Mark and Luke we see that all the sermons of Jesus are united as one by the first gospel.

The Sayings of Jesus have a peculiar style that differentiates

¹ See the illustration of Jesus going up to Jerusalem, in Tissot's *Life of Christ*.

them from the Proverbs or any other Biblical literature. The Proverbs generally compare the way of the good man with that of the bad man; they are antithetical and both bad pedagogy and low ethics. They represent not the healthy aspirations of youth, but the gouty pessimism of old age looking back at youthful indiscretions. The description of the "street walker" in Prov. 7 shows that the author was by no means a stranger to her.

The Sayings of Jesus, on the other hand, are the instinctive expression of a normal healthy mind. He never argued with a man but appealed to those things that all would recognize as true and right. As compared with the Decalogue, Jesus' Sayings are immeasurably superior. The Commandments hold up an evil before the mind and says "Thou shalt not," and straightway the desire to possess that evil is aroused if it was not there before, and strengthened, if already there. Jesus' sayings are all positive, with few exceptions in which he answered questions asked him. Thus Jesus consciously or unconsciously found the pedagogical principle that to be good or do good, one must think of the good rather than of exclusion of evil. Whatever the mind continually dwells upon will unfailingly exclude all else. It is not unlearning bad habits that is to be emphasized, but learning new and better ones.

The paradoxes of Jesus have given many good people much distress of soul to make him consistent, never dreaming that only small souls are anxious about consistency. An example of paradoxical language is seen in a comparison of Mt. 12:30, "He who is not for me is against me," and Lk. 9:50, "He who is not against us is for us." These and other utterances were made as occasion demanded; he never stopped to see if he was consistent with what he had said before. To make an exegesis of the words of Jesus (or any portion of the Bible, for that matter) without considering the occasion under which they were spoken, is a most serious blunder. The "case system" in Legal interpretation is equally applicable in Biblical interpretation.

The Parables of Jesus have been universally admired. Though commonly in use no one had used them so extensively or so well as Jesus. He never tried to draw a crowd but rather avoided it. His method was *quality* not *quantity*. He was in no haste to stretch out for the world. The teacher can do most who concentrates his efforts upon a few chosen pupils. In glaring contrast with this is the spectacular methods, now so common among the clergy, to draw a crowd. The parabolic teaching of Jesus was given to sift the crowd and compel them to think if they would find his meaning. Strauss well says: "A Parable attracted by its imagery and gave the more thought-

ful opportunity for increasing their power of understanding and reflection."¹

Matt. 13:10-15 as the fulfillment of Isa. 6:9 is the morbid fancy of the Evangelist who had learned that the great mass of the Jews were incapable of appreciating the teaching of Jesus.² The great value of the parable is its teaching by concrete example. The 35 Parables recognized by Plummer³ may be catalogued according to the following sources:

1. Flocks and Field, 10.
2. The Sea, 1.
3. Home relations, 10.
4. Business, 5.
5. The state, 3.
6. Society, 4.
7. Religion, 2.

It will be noticed that the Parables were taken from the every-day life of the people, especially the home and field which fills the life of a simple agricultural people.

The interpretation of the Parables has caused much difference of opinion, and that of itself is of great pedagogical value. The possibility of more than one interpretation has made the Parables applicable to all times and conditions.

We have seen that Jesus left his disciples to make their own interpretations, but the Gospels tell us that though Jesus did not interpret the Parables to the multitude, he did explain their import to his disciples. With no effort to fit facts to a theory, there are two reasons why the interpretations appended to the Parables could not have been given by Jesus.

(1) It is an affront to the intelligence of Jesus and his audience. Either Jesus talked over the heads of his congregation, or the audience was extremely stupid. The people *did* understand his meaning but the chains of habit and selfish interests held them. (2) The appendices do not go well with the Parables. They are forced, lifeless, and often antagonistic to the Parable. Either Jesus was a bungler or the Evangelists were. Mt. 13 has all the Parables appendixed. The Parable of the Sower, which shows the different susceptibilities of men's hearts, is allegorized. "Birds of the air" will take "seed" from one kind of ground as well as another. The whole matter is due to the fear among the early church that the orthodox interpretation would not be given them, or that the readers would be as stupid as Jesus' supposed audience. Among primitive peoples the power of abstraction is not developed; all is

¹ Strauss: *New Life of Jesus*, Vol. I, p. 348. London, 1865.

² *Ibid.*

³ Art. "Parables" in Hastings's *Dict. of the Bible*.

concrete. It has taken man a long while to develop abstract thought, and as that which came the earlier is the more fundamental, concrete illustrations always appeal to that which is psychologically more fundamental than abstract thought, namely, concrete thinking.

The Lord's Supper is the only rite that can be traced to Jesus and there is much dispute over its meaning, but when viewed from the psychological side these difficulties pass away.

All men have a desire to live in the memory of posterity and much of the incentive to action is due to that desire. The tombstone, while originating in fetichism, has abundant evidence of the effort to make one's name remembered. This is not altogether a low, cheap instinct, for it is as deep as human nature and is found in the noblest of men. We cannot wonder that Jesus, on the eve of what he easily foresaw to be his death, should have asked his disciples to remember him as oft as they gathered to eat the fraternal meal. When Jesus was gone, this rite made his presence seem very real, and the more so as he was probably the subject of conversation.

Surrounded as they were by Mithra cults and other fraternal organizations more or less full of mystery, and at a time when ancestor worship was celebrated at every meal, we cannot wonder that early Christianity took to itself this purest and noblest thought of heathenism. To this must be added the common conception that the spirits of the departed were present at every meal.

The "eating the flesh and drinking the blood of Christ," which very early led to the charge of cannibalism, has come to have a repulsive character to many. The survival of this most repulsive conception is seen in the doctrine of the "real presence" and even in the Methodist Ritual where it has been toned down to symbolism. If Hylan's report is indicative of anything it shows that the communion service is in little favor. Of two questionnaires the first of 75 returns reported 8 as favoring the communion service as a form of worship, while the second with 203 returns had 74 references to the communion—69 favored it and 5 opposed it.¹ From being the all important service in the early church this service has, in the Protestant churches, come to be celebrated but once a month, twice in three months, or even quarterly, and then the service has frequently been considered celebrated too often. Hygienic principles and various other reasons suggest that the rite needs remodelling. The Lord's Supper has had by far the most profound influence of all Christian institutions, and has been the

¹J. P. Hylan: Public Worship. Chicago, 1901.

means of breaking down race and cast barriers. The emperor and the beggar were on a level at the Lord's table. Most of the clatter about individual cups has come from those who recognize the brotherhood of the race but are not at all anxious to demonstrate it. While some objectionable features are found in the service, Christianity would lose the one factor that has given it its levelling power if it is given up. The beauty and vitality of Christianity is bound up in the common meal exemplifying the principles of brotherhood. Looked at from any point of view the Lord's supper is the master-stroke of genius in that it gave an ethical union with the Founder and an objective brotherhood.

The Miracles of Jesus were regarded by the Gospel writers, at least, as an essential part of his ministry—the work was secondary only to the word. Jesus is represented as appealing to his works as evidence that his teaching was from God (Mt. 11:2-5). Miracles were a part of the mission of the Twelve (Mt. 10; Mk. 6:7-13) and were the final gift of Jesus to the church (Mk. 16:15-20.) To eliminate the miraculous element from the narrative and take the rest as sober history is as unscientific a method with the New Testament as it is with Homer's *Iliad*.

To an impartial student it is evident that Jesus believed that to accept his teaching would work not only a moral change in a man's life but also a healing influence in his body—in other words, holiness of life brought wholeness of body. It is also clear that he looked forward to a time when sorrow, sickness and sin would pass away to trouble man no more.

This was the belief of the New Testament writers and of the early church, and whether true to human experience or only the creation of a transcendental idealism, is a question.

The miracles are the most unsatisfactorily treated of all Biblical questions. Strauss, Keim, Renan and a host of others advocating the mythical theory, resolve all this into unhistorical accretions to the narrative, but here we have a myth as a mystery to explain. Granting mythical elements, there must be some basis for the myths. Whether the miracles are really a part of the teaching of Jesus, textual and historical criticism must answer. The effort should be not to find what he ought to have taught but to find what he really did teach, even if one has to call him in error, and unmistakably he was in some things.

By no theory of documents can the miracles be entirely eliminated, for though they are reduced to their lowest terms, the element remains and it is no harder to believe ten miracles than one. Prof. Schmiedel,¹ who reduces the genuine sayings of

¹Encyclop. Bib., Art. "Gospels."

Jesus to a dozen short fragments, admits Luke 7:22, "And he answered and said unto them, go your way, and tell John what things ye have seen and heard; the blind receive their sight, the lame walk, the lepers are cleansed, and the deaf hear, the dead are raised up, the poor have good tidings preached unto them." The sources of the Gospels can be traced near enough to the time of Jesus to give the facts essentially as they were. A comparison of the Gospel of John with the Synoptics shows the difference between reflection and simple facts. The question remains, then, whether the Synoptic Gospels contain conscious or unconscious coloring of the facts, and in the examination of the data, two things must be borne in mind:

(1) Mythical elements may have grown up in the minds of even those who knew Jesus well, for where deep admiration for a person is felt, there is always the tendency to exaggerate the actions of his life. This may give rise to stories bearing every mark of truth and honesty. Callisthenes's Life of Alexander the Great may be taken as an illustration. Here a companion of Alexander invented some of the most improbable of stories and there is no evidence that he intended deception, but his admiration got the better of his good sense.

(2) There is no evidence that after the beginning of the preaching of Christianity any one doubted any tale told about Jesus, provided it was of a nature to honor his name.

The Apocryphal Gospels were early extant and of unquestioned authority as to facts, though some were heretical in doctrine, till the church arbitrarily canonized the works of those who were supposed to have seen the Lord, to the exclusion of all the rest, and even then the Apocryphal Gospels remained in the church for edification if not for doctrine. We are not to expect that every incident in the Gospels is verified history.

The account of the Virgin Birth is exactly paralleled by the Old Testament Patriarchs' wives and no one would dream that the children of Eve, Sarah or Rachel were *theogenetoi*. Nor is the birth of Gautama Buddha unlike that of Jesus—one is as likely as the other. These myths represent the psychological explanation of parenthood among primitive peoples and which now survives in the Christian doctrine that children belong to God and are put in human care for training. Never was a truer doctrine ever taught than the sacredness of parenthood.

The story of the birth of Jesus and the genealogies are due to the effort to make him fulfill prophecies which he claimed to fulfill in spirit; the test of his Sonship was not a doubtful genealogy, or Bethlehem's manger, but his *works*. The Resurrection is based upon the instinct that is as valid as the intellect and gives the assurance that if a man die he shall live again.

The old idea of a miracle as a suspension of the forces of nature by Divine interposition or as the focusing of another law at a given point so as to overbalance the forces ordinarily at work there, must be laid aside as groundless. All Thirsts who hold to an Intelligence behind and supporting all nature, must admit that it is *possible* for the Divine to make the world run backwards, but there is no evidence that the uniformity of nature has ever been broken and the improbability is so great that it amounts to an impossibility. Law is supreme.

In an examination of the miracles of Jesus each must stand on its own evidence and must be due to some natural law (then unknown), or to the exaggeration of a natural cause into the supernatural. To this latter belong the Feeding of the Five Thousand, the Walking on the Water, the Calming of the Tempest, the Raising of the Dead and the Miraculous Draught of Fishes. These all had a historical basis but it has been exaggerated.

The works of healing must be interpreted psychologically, as have all the other miracles, and shall we call them delusions or the religious interpretation of psychological phenomena? The latter view is favored by insanity and epilepsy being explained as demoniacal possession, but psychology and medicine must answer the question. This brings us to the most hotly debated ground of medicine—the fact or delusion of mental cures. Because extremists have carried this to unwarranted conclusions, that is no reason why the matter should not be calmly discussed and it would be strange indeed if where there is so much smoke there should be no fire.

It is well known that idle, nervous women imagine they have all the diseases advertised in the papers. Morbid thought is the only trouble and the disease has no objective reality. When mental cures are related they are generally turned away as merely the removal of the delusion of sickness.

That the imagination has a profound influence upon the body is not recognized as fully as it ought. The body and mind are most intimately associated and one is not affected without a corresponding change in the other. Every thought tends to express itself in motor phenomena.¹ This is well shown by the popular planchette and "mind-reading." Attention fixed on any part of the body will give a sensation in that part.²

Fear may cause death. Mosso relates cases of death from dysphobia from fear of it and cures wrought by simply re-

¹Lindley, E. H.: A Preliminary Study of Some of the Phenomena of Mental Effort, *Am. J., of Psy.*, VII, pp. 491-517.

²Hunter: quoted by Tuke. Influence of the Mind upon the Body, Vol. I, p. 5.

moving the fear. In times of pestilence fear has caused many deaths or so deranged the condition of the body as to lay it open to disease.¹ The phenomena of stigmata, notably in the case of Louise Lateau, shows that the mind can objectify its concepts. Disappointed love may lead to mal-nutrition and death by consumption. Tuke says "The emotions powerfully excite, modify, or suspend the Organic Functions, causing changes in nutrition, and excretion and thereby affecting the development and maintenance of the body."² The pleasurable emotions tend to act only in increasing the activity of secretions while painful emotions tend to lessen secretion.³ There is no organ or function that cannot be affected by the mind for both good and evil. The condition of the patient's mind is a most important factor in recovery from disease. A wise physician knows that all that induces cheerfulness is to be desired, while despondency will be likely to end in the death of the patient. Rush says "I have frequently prescribed remedies of doubtful efficacy in the critical stage of acute diseases *but never till I had worked up my patients into a confidence bordering upon certainty of their probably good effects.*"⁴ Dr. Wilks says "The doctor soon finds that in treating his patient, the practice of medicine is not only one of physic, but of psychology, and that the effect of his drugs *depends as much upon the constitution of the patient's mind as his body.*"⁵ Marshall says "as is well known the majority of sick people recover without, or in spite of, treatment. This is a well recognized fact."⁶ The percentage of sure cures are given as high as 80 per cent. Mental treatment has been tried by doctors, when medicine has failed, and with success. DeFleury⁷ mentions cases of cancer and broken bones cured at Loudres. Tuke mentioned cases where bread pills made as wonderful cures as medicine.

Marshall and most writers discount the mental curists in their claim that *their method* wrought the cure, and say the result was brought about through suggestion. Granted, but the question arises as to how many of the doctors' cures are by *their method* and how much is due to the suggestion of good to be obtained by the use of some particular drug?

Not all mind cure cases recover nor do those of the doctors, and considering results and such remarks as have above been quoted from Tuke and others, the case seems to be the better

¹ Mosso: Fear, p. 252 ff.

² Tuke: Vol. II, p. 64.

³ *Ibid.*

⁴ *Ibid.*, p. 232.

⁵ *Ibid.*, p. 233.

⁶ Medicine and the Mind. London, 1900.

⁷ A Study of Christian Science, Johns Hopkins Hosp. Bulletin, June, 1900.

for the mind curists. Nor is the doctor's case helped by an appeal to the history of medicine.

Among primitive peoples death is never considered as a natural thing; death comes from violence or sorcery, without which a man would live forever.

As disease and death are thus reduced to sorcery, principally, amulets were worn for protection and incantations were said to drive away the disease. Magical power was supposed to reside in stones and other objects, and were bound to the afflicted parts, not from a medical but shamanistic point of view. What at first was merely fetichism came in time to develop into the idea that the god was pleased to manifest himself through some particular object or shrub. That the shrub was not considered to have any medical power is shown by the incantations that were said over the remedies to induce the spirit to enter them, while it had developed a scientific diagnosis. Egyptian *medicine* was nothing more than magic. Ancient Babylon was worse in this respect than Egypt. Medicine has come from the humblest origin and until comparatively recent years was bound by superstitions of the past, and as "revealed religion" has had to give an account of itself, it may be in order to question how much of medicine is science and how much is superstition clothed with respectability.

The term "suggestion" is often used with reference to mental cures and with evident reference to hypnosis, but suggestion really covers a wider field than that and it may be doubted whether the term, stretched as it is, to cover all the phases of the equally indefinite term, hypnotism, means anything.

"Suggestion" meets us at a thousand turns of every-day life. Whenever one person influences another it is by "suggestion;"¹ prayer is nothing but "auto-suggestion" for to think that God holds the fate of the Universe in his hands whenever a Christian prays, is pious nonsense.

The use of hypnotism has been condemned as a violation of the rights of personality, and rightly too. Moll says, "Hypnotic suggestion and suggestion out of hypnosis have the same aim: to determine the subject's will in a certain direction. He is to do right, not unconsciously and mechanically, but with conscious will, which has got its direction either from hypnotic suggestion or ordinary education.

Suggestion sets the conscious will in the right direction as education does. Education is only good when what is taught grows into an auto-suggestion; *i. e.*, when in particular cases the well-taught person must consciously do the right he has

¹ Moll, A.: Hypnotism, pp. 219 ff.; Goddard: Effects of Mind on Body as Evidenced by Faith Cures, *Am. Jour. of Psy.*, X, p. 481.

been taught to will.”¹ But, nevertheless, the right of another to come in and force the will to a course of action, however moral, is seriously to be questioned. Hypnotism is the abuse of the natural law of suggestion which works through faith in another, and even through fear.

“Religion has in it all there is in mental therapeutics, and has it in its best form. It teaches temperance in the broadest sense, high ideals and dependence upon the Highest alone. This preserves those who know it, by practice as well as by precept, from most of the ills that make up the list of those curable by mental methods. . . . Whatever the fundamental relation of mind and body may be, the aim of all conscious effort relative to physical well-being, should be to become unconscious of the organic life and its functions.”

If Evolution has taught any lesson it is that life must be in accord with Law. Disease is abnormal and morality and health go hand in hand.

The place of religion has been to banish the fears that so long oppressed the souls of men and make them realize that they are not the victims of a cruel fate, but the creatures of an all-wise and loving Father. The author of the First Epistle of John spoke well when he wrote “perfect love casteth out fear.” Dr. Hall has expressed the same thought, “Many real cures ascribed to the mind, faith, etc., I think we must really ascribe to the natural physical regeneration that comes from breaking the insidious paresis of fear.”² This was the purpose of Jesus.

My position is admitted by Prof. Schmiedel, who says, “According to Mk. 6:5 f. we are to understand that Jesus healed where he found faith. This power is so strongly attested throughout the first and second centuries that, in view of the spiritual greatness of Jesus and the imposing character of his personality it would be indeed difficult to deny it to him.”³ Prof. Schmiedel further thinks the cures of Jesus were by psychic means, as according to Mk. 5:7-10 “Jesus, like a modern alienist, enters with the man into a conversation to find what the hallucination really is.”⁴

Miracles were common before Jesus’ time but they had not been on an ethical basis, nor had men dreamed that practical ethics existed except in a rudimentary way. The great work of Jesus was his uniting philosophy and life. Even though we call him deluded we must admit that he lifted up the medical science of his times to the field of practical ethics. The

¹ Moll: *op. cit.*, p. 332.

² Goddard: *op. cit.*, p. 501.

³ A Study of Fears, *Am. Jour. of Psy.*, Vol. VIII, p. 227.

⁴ Article *Gospels*, *Encyclopædia Biblica*, Vol. II, coll., 1884-1885.

⁵ *Ibid.*

writer of Proverbs emphasizes a principle that modern psychology has made a scientific fact—as a man “thinketh in his heart so is he.” This principle underlies all Jesus has to say on mental hygiene. Our papers are full of crime and patent medicine advertisements which, by the law of suggestion, are creating abnormal thoughts in their readers. The law should forbid the printing of blood curdling details of crime and also the promiscuous advertising of patent medicines, except among doctors. We should regard the medical advertisement and the courtesan as on the same plane. Pure wholesome thought is as necessary as pure air.

II. THE CONTRIBUTION OF JESUS TO EDUCATION.

We are not to expect that Jesus originated all the principles he enunciated. Every man is the product of his environment, and whatever may be his teaching, its germs will be found in the past. His originality is seen in taking old ideas and giving them a new life. There are a number of well defined principles underlying the teaching of Jesus.

1. *Life has a purpose.* The seeming egotism of Jesus was due to this conviction, and his power of inspiration was directly due to this. One's work can be done by himself and not by another.

2. Things in the world of intellect move according to the laws of evolution. The Law and the Prophets led up to Jesus, and though his teaching was for the present, it equally considered the future. Things must be regarded in their organic connections. Changes come by evolution, not revolution. Though the teaching of Jesus was in direct opposition to the Law, he saw much in it that was worthy of mention and said nothing about the rest, but when pressed by others, said it belonged to a lower dispensation. Nothing illustrates this principle of evolution better than the development of Jesus' teaching.

3. The world must be regarded from a catholic point of view and not from a narrow sectionalism. The Law only considered the Jews and at best the later prophets regarded the triumph of Jahveh as a physical, not a moral one. The ministry of Jesus led him to take a view as broad as the world, even though he never suspected how large that world was.

4. He emphasized principles not laws. Principles are for all time; laws are but the embodiment of those principles at a certain stage of development. The principle of love to God and man was carried out even to love an enemy.

5. Emphasis was laid on life as an attitude, as an ideal to be striven for, rather than as a philosophy. He approved not the

man who said yea, yea, but the one who did the will of God.¹ The miracles reflect the thought that religion was a life and not a creed.

6. Jesus taught by positive precepts, thus creating ideals of right living and habits of right thinking.

7. Teaching was by concrete lessons from such things as interested his listeners, and most probably Jesus' teaching was by object lessons.

8. The parables stimulated self activity and prevented mental stagnation. No principle of pedagogy is more fundamental than this.

9. Jesus gave no rules for church organization nor for the conduct of the work, thus leaving the church elastic and in a condition to adapt itself to its environment.

III. JESUS AS AN IDEAL CHARACTER.

There is in the heart of every one a desire to rest upon something as final and authoritative. It may be the church, the Bible or a person. On the other hand the surest way to undermine a person's faith is to question the authority of that upon which it rests.

Dawson says, "At all ages, children feel more interest in persons than in any other elements of the Bible. Even Bible scenes and stories appeal to them mainly through the man, woman or child that is the center of the scene or the principal actor in the story. This suggests that the Bible should be given to children of all ages, through its personal element. Thus the Bible should be given to young children through the child Jesus. Everything in either the Old or New Testament that could be properly used to make this human child Jesus intelligible and lovable should be employed. "No theological explanation of his birth, nature, or mission need be attempted. The spontaneous love of one child for another may be trusted to give Jesus a secure place in the affections of children, if he is presented simply and attractively."² In other words, to make Jesus or any other character appeal to children or adults, those traits must be emphasized which make contact with the interests of those children or adults. But something more than this is necessary. There must be a type of character that transcends the present experience, and lies along the line of thought of the person interested.

Moses with all his strength is a faulty character, and David would speedily be sent to prison were he to do to-day as he did in his times. It is a most difficult matter for an adult, much

¹ Pfeiderer, O.: *Philosophy of Religion*, IV, p. 251.

² *Children's Interest in the Bible*, *Ped Sem.*, VII, pp. 177-178.

less a child, to make allowances for changed circumstances. To my knowledge a class of boys unanimously condemned a character in last year's Sunday school lesson, even when the teacher and lesson notes attempted to show how a thing could be right then but wrong now.

Mention has already been made of the treatment Jesus has received from theologians and artists. This shows what strange ideals neurotic people will have. But looking at Jesus as portrayed in the Gospels, we find a person normal, yet strong, in every phase of his mental life. The emotional, active and reflective sides of his mental life were highly developed and well balanced. So far as I have been able to find out, no one has found anything in the life of Jesus to criticise. Removing him from his historical setting, so far as we have anything to judge him by, there would be nothing objectionable in his life and teaching as to-day viewed from the standpoint of the better classes. Jesus has been removed from the divine, but only to be enshrined as never before in the hearts of the people, because that love is an intelligent one.

IV. JESUS AND OTHER GREAT TEACHERS.

No three characters in history present more similarities than Buddha, Socrates and Jesus. This is not remarkable for within certain limits all grand, ethical, and religious reformers of history have much the same characteristics.¹ Religion was, probably, more present to Christ and Buddha than to Socrates, who had to meet sophistry, scepticism and dogmatic materialism as well as the anthropomorphic conceptions of Hellenic religion. Buddha had a purely ethical mission besides his antagonism to Brahmanical theology; and Christ combined with his attack on Pharisaism and Hebraic ritual the advocacy of socialistic ideas and democratic championship. Xenophon and Plato are to Socrates what the Synoptic and Johannine Gospels are to Jesus. Buddha is likewise pictured in this two-fold way in the wonderful *Lalita Vistâra*, the standard Sanskrit work of Northern Buddhism, and in the more humble *Pali Pitakas*.

Socrates's mission was revealed to him by an oracle, Gotama Buddha's while under the Bo-tree, and Jesus' while in the desert. Jesus and Buddha both had a protracted temptation; both have priestly bigotry to meet. All three met violent persecution. Each refused to incorporate any physical or metaphysical theory into his teaching; each started from topics of every-day life with parables, etc. Jesus has his Judas and Buddha his Devadatta. Jesus had his John, Socrates his Phædo, and

¹ This and much of the matter following is taken from Courtney's chapter on "Socrates, Buddha and Christ," in his *Studies at Leisure*, pp. 181-202.

Buddha his Ananda. The account of Buddha's death resembles both that of Socrates and Jesus. Buddha dismissed his disciples at Vesâli much as Jesus did his before the Agony of Gethsemane. Each comfort his disciples with a farewell discourse. Buddha and Jesus are later thought to have been born of a Virgin. Buddhism and Christianity started as a purification of an old religion; both were universal religions of salvation; and both developed into monasticism and sacerdotalism.

Buddha's sermon at Benares suggests the sermon on the mount and was given under the same circumstances. All were "other-worldly," except, perhaps, Socrates, and he showed that trait in his farewell speech. Jesus and Buddha looked at their teaching as a purification of the old religion, but both taught, in reality, doctrines that could not be reconciled with the old. Neither Buddha nor Jesus gave any directions concerning the conduct of the work after their death. Both Buddha and Jesus demanded self-renunciation.

A quotation from one of the scores of parallels with the New Testament sounds familiar, "What men call treasure when laid up in a deep pit, profits nothing, and may easily be lost; but the real treasure is that laid up by man or woman through charity, piety, temperance and control."

T. S. Berry gives nine points of contact between Buddhism and Christianity.¹

1. Nature of Righteousness.
2. Importance of Righteousness.
3. Nature of Sin.
4. The World.
5. The Path of Duty.
6. A man's work begins with himself.
7. The Duties of Life.
8. The Personal Founder.
9. The Visible Society.

He also gives a large number of parallel quotations from Buddha and the Bible. His "contrasts" between Buddhism and Christianity are far fetched and apply as well to the latter as the former. A comparison of the place of woman in Buddhism and the Pauline Epistles will show that Paul might have copied his doctrines from Buddhism, so far as difference goes.

There are some contrasts between the life and teaching of Buddha and that of Jesus. Buddha was of royal blood and after enjoying the pleasures of the world to the full, turned from his old life in disgust to seek for rest of soul in something else. His teaching has the pessimistic ring of wasted passion. Jesus was of obscure birth (unless the Genealogies are taken

¹ Christianity and Buddhism. London, n. d.

as sober history) and so far as any evidence, historical or psychological, is concerned, developed naturally.

The question of the influence of Buddhism upon Christianity is an interesting one, and though it is likely and in some matters, certain, the coincidences have been carried too far, we must remember that history does repeat itself and that the conditions that once gave rise to a certain type of man may again bring out another of like character. As has been noted above, Buddhistic influences are traceable in monasticism, rosaries, and possibly in image worship, Madonna worship, and the doctrine of the Virgin Birth.

The genuineness of both the Gospel narratives and the Speeches of Buddha are called in question and if we are sometimes compelled to accept Prof. Schmiedel's sweeping conclusion with regard to our Gospels, we may solace ourselves with Prof. Garbe's conclusion with regard to Buddha (which would then equally apply to Jesus), "For since the doctrine, of all these [old Hindu monastic] orders, or of their founders were essentially alike, and since it will scarcely be attributed to accident that the teaching of Buddha alone developed into a world religion that even to-day is the most widespread of all religions on earth, the only explanation of this is found in the assumption that Buddha's manner of teaching is responsible for the result, and that we have to seek in it the germ of the latter expansion of Buddhism."¹ Thus Christianity and Buddhism stand as the irrefutable proof of the personality of the men who founded them.

¹Garbe, R.: *Philosophy of Ancient India*, pp. 81, 82.

HOW CHILDREN AND YOUTH THINK AND FEEL ABOUT CLOUDS.¹

By G. STANLEY HALL, and J. E. W. WALLIN.

SEC. I. CONTEMPORARY CHILDHOOD.

Of the 461 returns on which this study is based, 85 were negative, 62 of these containing no allusion to the matter, and 23, the explicit statement that nothing could be recalled. That the 18% of negative cases may slightly underrate the number of subjects deficient in cloud fancies appears from the following considerations:

The number of positive answers was 327 for females, and 49 for males. The number, of especially the latter, may be too small to be regarded fairly representative.

The results were gathered under various conditions.

Two collectors gathered replies to several questions on the moon, sun, storms, wind, heat and cold, stars, frost, ice, clouds, etc.; the queries on the latter being the following:

What are the bright clouds on a sunny day made of, also the dark, heavy clouds, and what are they for?

What have you fancied you saw in the clouds?

How did the prettiest and brightest one you ever saw make you feel?

What did it suggest?

The answers to these questions were mostly reminiscent; a considerable number were replies by young children, some were observations made by the contributor while watching and discussing the clouds with a child, and some returns consisted of all three. Another collector asked his pupils to jot down recollections concerning their spontaneous feelings toward the above phenomena, without formulating definite questions, especially cautioning them against exaggeration or over-completeness. These returns also contain a few reports of child-

¹ We especially acknowledge our indebtedness to Principal E. H. Russell, of Worcester, Miss Lillie A. Williams, of Trenton, N. J., Professor W. S. Monroe, of Westfield, and to the Oswego State Normal School. These four normal schools have collected the most and best of our data.

Dr. Theodate L. Smith has done work, especially upon the latter part of the article, that almost makes her a joint author.

ren's sayings. A third collector obtained returns upon "What I, as a child, saw in the clouds."

The material thus collected specially appertains to the stage of life represented by normal school girls of an average of about nineteen.

Taking the results of the second collector, where all of the given groups of 214 students gave their own recollections on, at least, six of the questions propounded, as most representative, we have 26% of negatives, 35% of which stand for positive declarations that nothing could be recalled, some of these, however, recalling that factual existence of early, but, now forgotten, recollections, and 65% for blanks, we shall, perhaps, not err greatly in accepting 25% as a mean value. If so, then one must be struck by the wide prevalence of the cloud tropism in the modern soul, a fact of no mean significance in itself for naturo-pathic psychology.

From what has been stated it may be inferred that no comparison will be attempted in the gross results between the sexes, the ontogenetic stages, nor the different varieties of fancies. This could only be done with any semblance of precision where the data represent resultants from identical or uniform methods or conditions.

In all such work as this there are peculiar temptations to theorize on insufficient data, to ignore negative cases, and to make too much of each individual that proves a theory. The material itself is heterogeneous, and from different places; gathered on different methods, from different ages. Perhaps some of the questions may have been too suggestive. There is no better ideal than that of Darwin, "I worked on true Baconian principles, and without any theory, collected facts on a wholesale scale." Let him who seeks truth resolve to state and interpret, not make, his facts; to bridle his own tongue, while the facts recite their own story; to place the gag where it belongs, over his own wobbling tongue and bow in humility to the authority of "facts collected on a wholesale scale."

It may be frankly acknowledged that, in this field, as indeed in any, where the representative function is at work, much that is of choicest value is individualistic.

Probably no one would champion the crass assertion that this is purely a chapter in individualistic psychology or æsthetics; yet were he so disposed the application would fit most smoothly in the more elaborate constructions or symbolisms. Yet even here the influence of a common environment is of undoubted potency.

To harmonize the two standpoints, or minimize the difficulty at stake, we shall quote freely from the returns, although this

must be done topically, and give replete details even of points seemingly trivial.¹

What Clouds are for. Fifty children between the ages of 4 and 13, with the average above nine, were asked what the high, bright and dark, heavy clouds were for. Twenty-seven mentions were made of their connection with rain, 2 of these referring to the high, bright, 17 to the dark, heavy clouds, and 8 were generalized.

Seven thought their function was to make the sky look nice or pretty, five of these referring to the bright ones; and one each gave their functions as follows: bags to hold rain (M. 12), to hold up water (M. 10), to make the rain come down (F. 11), the black to make the wind blow, and the bright, to help the sun make heat for people and animals, and to help make light (M. 5), the bright, to form cumulus clouds, while the dark are a sign of rain (F. 9), the dark to announce rain and a coming storm (M. 9), to protect the sky (F. 13), to cover or shade the sun (F. 10, M. 9), to make shade on the earth (F. 6), to keep us from seeing the angels (F. 12), so we can't see God, the Lord and the angels (M. 4), the bright ones, to prevent the sun from shining too bright and to make it cooler on a warm day (M. 12), the black to allow the sun, moon and stars to go behind and sleep (M. 11), to give us rain and air (F. 10), to water the plants (F. 11), "to make men's wives keep from getting drunk" (M. 6), (he had played this in a game); two did n't know their purpose.

Of most obvious interest are, (1) the considerable variety of different purposes mentioned, over a score for less than twice as many children.

(2) The fewness of the staple or most prevalent purposes, such as the black clouds for rain and the bright ones for beautifying the sky; (3) the common sense of most, the fancifulness or the absurdity of some replies.

Their distance. According to Lang and Erk, in the *Deutsche Meteorigisches Jahrbuch* (Munich), for 1901,² the heights are as follows:

Stratus, under 5,000 ft; nimbus, or rain cloud, 5,000; cumulus, 5,000 to 6,500; strato-cumulus, 6,500 to 8,000; cumulo-nimbus, 4,000 to 13,000; alto-cumulus, 13,000; alto-stratus, 16,500; cirro-cumulus, or dappled sky, 20,000; cirro-stratus, mackerel sky, 27,000; cirrus, or mares tails, up to 35,000.

¹ The figures, where not otherwise stated, refer to the number of mentions, and not to the number of persons. The two need not coincide; *e. g.*, *a* may see horses, lions, chariots and mountains, *b* regard the material as smoke, snow and water, which accredits one mention to each item.

² *Cf.*, Inwards: *Weather Lore*, frontispiece. London, 1893.

From the indications at hand, children regard them so near that, with mechanical hindrances obviated, they might be speedily reached, a feat often contemplated with intense longing.

(F. 20) thought surely they could be reached if two large houses near by could be superposed; (F. 19), if all the houses on her street and another, (F. 19) if all the houses of her playmates could be stacked thus; (F. 21), on seeing large white clouds near the horizon, thought that by jumping from roof to roof she could finally touch them with her hands; (F. 21) believed this possible with a stick if she could get on a hill high enough; she once ran a long distance toward one on which they appeared to rest, thinking she could grasp them in her arms; (F. 21), between four and five, wanted to touch them from a high point with a long stick; she firmly believed this possible, but that they withdrew on her approach, trying to draw her up, which caused constant fear, particularly with unusually dark clouds. (F. 22), until seven or eight, thought distant clouds actually touched the earth, or rested on tall trees when these were in the way. Another (M. 31), from about 3 to 6 conceived them resting upon the tree-tops. (M. 8) could n't see how M—"could get behind a cloud" so as to see it beneath her from Mt. Washington; (F. 19) believed she could get some snow of which the clouds were composed from the top of some high building.

What are the bright high clouds on a sunny day made of, also the dark heavy clouds, and what are they for?

COMPOSITION OF CLOUDS.

Seventy-two of the 122 replies bearing on this phase were from children mostly under nine years in reply to the question as formulated as above.¹

In 58 mentions they are made of some form of moisture: vapor being mentioned 24 times, rain 20, water 7, steam 3, fog 2, and mist and dew once each; in 53, of smoke; in 24, of snow; in 11, of some form of cotton, in 8, of feathers, in 5 of dust, in 4, of wind, in 4, of mud or dirt, 3 did n't know; and in the others, of miscellaneous materials. The high white clouds were vapor in 14 mentions, and rain in only one; the dark, rain in 18 and vapor in 8; the white, snow in 21, the dark in only 1; the dark were called smoke (22) more frequently than the white (8 times). In 12 instances the smoke was said to be suggested by, be like or be the same as that from the smoke stacks of foun-

¹In what follows, much that is included under representations is not reproduced here, although it could be considered as ideas respecting the material of clouds.

dries, steam engines, mills, factories and houses, which they saw rising and mingling with clouds. (F. 21), between seven and ten, believed that they were made after people had started their fires; (F. 20) thought they were made from the smoke of all the chimneys in the city; and that they passed to another city when it cleared. (M. 3), that they were made from the smoke of his father's "choo choo cars." (F. 19), that they were formed of hot smoke. (F. 10) regarded this as an indisputable fact for she plainly saw the smoke ascending from locomotives. One child thought that they were made of snow in summer; two, in winter, while snow was on the ground; one, from the snow of the previous winter; another, of that which had fallen from a mountain in the sky; (F. 19), of the water which God reached down and brought up from the ocean and rivers. (F. 4), of goose feathers pulled out and dropped, another of feather beds and one of feathers on white soapsuds. (M. 20) thought that he had parts of the clouds when catching feathers floating about.

The following materials were mentioned once each: Something like the world (M. 8);—fat making the hands greasy if handled (F. 19 from age of 5 to 8);—something tangible or solid; bodies capable of being grasped when sufficiently approached; (F. 22, never quite understood their texture while studying them);—a substance which could be cut (F. 20);—semi-substantial (F. 20);—white soapsuds (F. 22);—the wool of sheep (the white cumuli, though she knew they were not, F. 22);—ice cream (F. 16);—heavy sandstorms like those on the desert read about in geography (the dark clouds);—large volumes of white smoke spreading over the sky and forming a ceiling with beautiful curves;—white fleecy lambs (suggested by a story, F. 21);—masses of colored cotton (F.);—surf (the white, F. 22, at about 10);—dark and white patches, but doubting this because the wind moved them (M. 4);—sieves allowing water to come through as rain (F. 19);—sieves or sprinklers the size of whose perforations determined the size of the rain drops (rain clouds, F. 18);—lead, (the dark, F. 17); dollars floating around, (the mackerel sky, F. 22);—the light clouds, of pieces of silk, the dark, of ink and black cloth (F. 7);—the light, of cotton, the dark, of gunpowder (F. 18, at about 8);—the light, of light smoke, the dark, of wind, rain and black smoke (F. 11);—(M. 6) the light, of the sky, the dark, of rain (M. 6);—(M. 8) the light, of air, the dark, of black smoke (M. 8);—the light, of smoke, breath and vapor, the dark, of smoke (F. 6);—the light, of soft feathers, the dark, of smoke, although they hold wind and rain (M. 6);—the light, of fog, though sometimes we make them, as, *e. g.*, "I did from my bonfire;"—the dark, of the heavy fog rising

in the morning (M. 9);—the light, of thick white smoke, the dark are of parts of a coming storm (F. 18, from 7–10);—the light, of cherry blossoms, the dark, of Penn. R. R. smoke (M. 6);—the light, of sunbeams, the dark, of vapor (F. 12);—the light, of sunshine, the dark, of something very dark (M. 5);—the light, of clearness, the dark, of rain and wind (F. 11);—the white, of dirt, the dark, of mud (F.);—the white of feathers, the black, of a “black waterproof drawn over,” though the latter was not believed (F. 18);—the light, of some fleecy material, suggested by the remark, “what fleecy clouds!” the dark, of some black stuff;—both as angel’s robes, the dark, having silvery linings (F);—the white, as silver streaks across the sky, the dark, as curtains pulled over the sky (F. 17);—the white, as water, the dark, as full of thunder (M. 11);—the white, such because high, the dark, such because low (F. 7).

Here may be noted again, (1) the considerable variety of substance mentioned, about fifty for 122 subjects; (2) the small number of staples, moisture and smoke forming the highest, snow the intermediate, and cotton and feathers the lowest group; the white clouds, especially, being snow and the dark, rain; (3) the sensuous basis or suggestiveness of most answers, and the arbitrariness of others.

CLOUD REPRESENTATIONS.

Of the 601 separate mentions of forms, shapes, pictures, objects, and beings made out, formed, thought, suggested, imagined or seen, 375 belong to what may be roughly termed, animate nature, and 226, to inanimate nature.

Of the former 158 are quadrupeds; 131, persons; 25, angels; 20, plants; 11, winged animals; 4, aquatics, and the balance, miscellaneous.

Of the latter, more than one-half, or 142, pertain to what may be loosely designated geographical fancies, of which 121 are more purely land and 21 water phenomena. This includes only those objects inherent in, or part and parcel of, land and water, and not those incidental to them, chattels. The mountains (38) were most abundant—we include among them the hills (8) and the snow banks, drifts or heaps (19) many of which are described as huge in dimensions. Five stated that the mountains were made of snow, making 65 mentions. Next, follow in order land masses (55) viz., unspecified continents (11), North America (7), landscapes (6), South America (5), islands (5), countries (4), floating islands (2), Europe (2), and one each of Spain, Turkey, Denmark, the Scandinavian peninsular, the “boot” of Italy, Asia, Africa, Gibraltar, capes, farms, a land with—a lake, states and fairy

lands;—buildings (31) viz., houses (15), castles (12) of which one was an ancient structure with many turrets and towers, and another a vast pile with floating pennants in beautiful colors, palaces (2), the shining house of Queen Mab (1), church with spire (1), temple (1); ships or boats (28); water scenes (21), viz., rivers or running streams (4), the ocean (3), the seashore (3), the surf or waves (3), bodies of water (3), lakes (3), (one observes seeing the great lakes of North America), icebergs (2); vehicles of land travel (20), viz., chariots (14), buggies or carriages (2), wagons (2), bicycle (1), trains of cars (1);—vague references (19) such as figures (3), shapes (3), forms (3), images (2), pictures (2), objects, anything, most every form seen in nature, ragged forms, forms with golden borders;—cotton appearances (8), viz., huge piles (4), cotton-batting (2), huge bales (1) and thin rolling white flakes (1); rocks or stones (5);—cities (4);—flames, conflagrations or fire (4);—towers or steeples (4);—swords (4);—soapsuds (3);—triangles (2);—chairs (2);—crosses (2);—playthings (2). The following were mentioned but once: an erupting volcano, various kinds of food, things to eat, ice cream, all kinds of candy, hammocks, boots, shoes, windmills, a "black waterproof," chains, oblongs, circles, the pyramids, a pail, a shipwreck with all the details, barrels turned upside down, golden pictures, rubies, diamonds, sapphires, a round ball, "my dolls," furrows plowed in the ground, storms, a crook, velvet, roads, pipe.

The following, unless otherwise indicated, were mentioned once: people in ships (4), ships with white masts and sails (2), Elijah's chariot, chariots drawn by two or four horses and frequently with a driver, a chariot drawn by white horses, a chariot drawn by four horses pulling some one up a wide street, horses prancing along with a chariot and buggy, tier upon tier of snow crested mountains, roads winding in and out among mountains, church spires distinctly seen in a distant city, clouds drifting behind the steeples, a large card with different colors upon it. One observer noticed especially the coast of Europe from Denmark to Gibraltar (F. 21); two considered the clouds curtains of the sky, one imagining the rays of the sun when just visible around the edges, as the light behind them.

M., 11. Most commonly saw castles and landscapes, another child saw landscapes and shore scenes. To one chariots were the objects most often depicted, to another, mountains, to one castles were very rare to another common. One child imagined stories about the clouds rather than formed pictures.

Forty-two per cent. of the animals were not specified, but merely mentioned as many, several, various kinds, all sorts, wild, huge, familiar, moving, etc. The horse (24 mentions)

and dog (20) were most frequently seen, followed by the lamb or sheep (12), the lion (8) and bear (7). Other animals seen follow in this order; the bird (7), the cat (4), cow, fish, wolf, tiger, camel and elephant, reindeer, deer, bull, buffalo, duck, goose, frog, ram's head, alligator, butterfly, chicken. Trees were mentioned 16 times, and ferns, plants and flowers, single and in bunches, once each.

One observer usually saw the animals maimed or crippled;—one, the heads merely;—one, parts frequently;—one, (F. 21) especially wolves and bears but seldom human beings;—two, always huge monsters sailing through the clouds;—three, rarely ever anything but animals;—one, usually horses;—and two, never animal forms;—four, always familiar ones;—and six, usually wild ones;—one saw a caravan of camels;—one, a procession of animals;—one, the camel's hump;—one, a sheep with two legs;—three, a flock of sheep;—two, their fleece;—one, "a dog like Nell;"—one, a big white one;—one the elephant's trunk distinctly;—one (F. 21), wild animals seeking a desirable place to live;—one, a bird of enormous size;—one, saw birds flying around;—one, both flying and at rest;—one, on looking at the dogs a second time found them entirely different.

The men and animals are often regarded as participating in races and battles or chasing one another. Eight, saw battles between two armies;—one (F. 22), between a bear and alligator and between dragons and giant men;—one (F. 21), between lions, wolves, and especially bears; as the clouds passed by, she could determine the victor, the vanquished foe being thought to be eaten up;—one noticed the soldiers fall one by one in a fierce combat on the battlefield;—one saw naval battles;—one, the snow men knocking each other over;—one, steeds charging each other, a human figure occasionally appearing to block the way; one heard the thundering of two armies. One fancied animals were always trying to catch each other;—another, that the clouds were doing the same because moving so rapidly at times;—two, that the swiftly moving clouds were the pursuit of people;—one saw fishes chasing a frog;—one, horses engaged in a hot chase;—one, animals fleeing to escape God;—one tried to name the clouds in the cloud races. One saw the clouds playing tag;—one, children racing;—one (F. 21) regarded the movements as genuine races;—she named each cloud, and noticed which disappeared or completely changed its appearance first;—one saw large and small ships sailing over the ocean, alternately gaining and losing; she could generally picture the one finally victorious.

Of the persons mentioned 48 are referred to as men, 16 as women, 6 as children, 23 as people, 24 as human faces, and the

rest are miscellaneous. One saw soldiers;—one, sailors;—(F. 10), a milkman ascending the stairs with his pail;—(F. 22), a pale ghostly body reaching out longingly for her but slowly fading away;—one, a clown;—one, living and dead acquaintances;—one, friends;—one, noted people;—one, men on horseback;—one, the heads of old men;—one, the faces of old gray haired men like Longfellow;—two, their mother's face;—one, a child's;—one, a man's covered with a beard;—one, beautiful ladies, usually the profile;—one, men with wings;—one, a man with a sword;—one, persons dressed in peculiar styles doing various things;—one, a girl;—one, babies;—two, children playing different games;—one, the heart;—another, parts of a person;—one, persons awheel, in a chariot and a buggy;—one, old men with funny faces, whose pictures she would draw;—one, people busied with all sorts of things;—one, a rain- and thunder-man;—one, her aunt;—three, witches;—three, indians;—one, Dido with bows and arrows;—one, Laplanders or northern people covered with fur;—one, Santa Claus in his sleigh loaded with toys;—one, with his reindeer;—one, human beings in all sorts of positions;—one, "Jack the Bean Stalk;"—eight, giants, one only seeing the faces and three describing them as having huge bodies;—one, fairies and elves;—one, dragons;—two, men walking about;—one, men riding around;—three, never, and two, seldom, saw human forms or faces;—to another, angels were extremely rare;—(F. 21), remembers distinctly a hand seen once;—(F. 22), actually believed the faces seen to be those of dead friends;—another, that the dead were among the clouds.

The following features are noteworthy:

(1) the prolificness of the youthful shape-fancying impulse: over 100 different phenomena or striking variants, of which nearly 60% belong to the inanimate world, being recorded for 376 individuals; (2) the limited range of the "staple" objects; the following being the order for those numbering at least 20; quadrupeds, persons, mountains, continents and countries, buildings, ships and boats, vehicles; (3) the wide range of fine individual differentiations or variants of the "idols of the tribe."

At this stage the constructions of the supernatural may be pertinently introduced. One saw an angel with a bright robe;—one an angel's wing;—one, an angel with a sword;—one saw them formless and dim;—one (F. 19), on a certain day, a perfectly shaped woman with wings, which she believed to be an angel; by watching she would see many of them;—one (F.), at times, flying angels looking directly at her, thus preventing the commission of some intended wrong, through the fear that they would tell God who would punish her,—imagining all this from having heard of angels in the clouds;—one frequently

imagined she saw angels when she had been disobedient; and God looking down at her disapprovingly. One observer relates that one of the clearest remembered pictures was seen one evening a few minutes before sunset. The sky was beautifully lighted up and a form like an angel seemed to grow out of a small cloud, with the wings especially clear, and to hold a large sword extended.

The thin dark clouds blown quickly across the sky reminded one child of a frown on a person's face. When one frown was gone, another came, and imagining this to be God's face, she thought that he must be very cross and unpleasant. (F. 19) on one occasion, just at sunset, ran to her mother, telling her to come quickly, God was sitting in a chair, the bright clouds forming the image.

F., 18, always called bright clouds God's feathers.

M., 3, asked "Mamma has God got red whiskers?" He thought that the red clouds were God's whiskers.

F., 20, when about eight years old thought that our Lord told a boy in the sky to strike clouds against each other, producing a loud noise or thunder, whenever the doings of people displeased him.

Over a score alluded to heaven, mostly in respect to its locality. It was considered to be directly in the clouds, but usually beyond especially the red or golden ones.

(F. 19), believed, between five and eight, that heaven was above the clouds;—(F. 20), still believes this;—another (F. 20), rejects the scientific theory in lieu of this, the first believing that God lived in this Heaven;—(F. 19), until fourteen thought it was above the blue of the sky, regarding the sunset as a gate whose wealth of color suggested the gate of the heavenly city.

(F. 21), as a child, regarded these clouds as the gateway to Heaven: "I used to steal away in summer to a certain spot and study them, being sure that if I only had a balloon, flying-machine or something to bring me to them, I would soon be in Heaven, as I could then walk through them."

F., 26, thought that Heaven looked like beautiful clouds at sunset, and if she could push away the clouds and reach the blue she could step right into Heaven.

F., 27, considered the bright red and golden clouds the opening of Heaven where people could see a short way in, the golden clouds being the beginning of the golden streets and the bright clouds making the earth dark by contrast, the light of the heavenly city being neither from the sun nor the moon. Later she thought out and finally believed the story that the red was the reflection of the fires where Santa Claus baked cakes for good children. She thought that there was another world above us, with the blue for the ground, and another beneath us. She often dug deep holes in the ground to break through and see the people who lived there.

F., 19, was sure that the golden light in the clouds, when too bright to look at, as at sunset, was Heaven, that the gates were then open, and closed when the light and the glory faded.

The beautiful colors of sunrise and sunset reminded one observer of Heaven, and made another think that it must be very near.

To F., 22, as a child, great billowy white clouds were entrances to Heaven, and although not appearing as gates or doors, one could pass through them to the clear open space beyond.

To F., 18, the brightest clouds suggested the brightness of Heaven; to another, Heaven, where she thought the people of that realm rested upon the clouds. F., 17, thought that when the white clouds upon which sun shone were especially beautiful, that it was the beauty of Heaven.

When F., 7, saw a cloud roll over a home lately visited by death, she imagined it the place of the departed, though locating Heaven behind the sky, she wondered why clouds passed over the houses. F., 22, believed that Heaven was in the clouds; when they moved God walked about in Heaven until He reached the point where the earth touched the sky, when He came down upon the earth.

F., 22, was told when a child that dead people went to Heaven. She thought that they were among the clouds, and that changing their dresses caused changes in the colors of the clouds. She especially thought of this when viewing a brilliant sunset, fancying that the brightness of the sun came from the bright lights in their houses and halls.

F., 18, once saw her mother's form, with pale, clear and beautiful face, slowly borne to Heaven by an angel.

F., 16, relates that one evening last summer, while standing on a railway platform, she saw the semblance of a large river of lava, the middle being the hottest, with a volcano in the distance. This gradually changed to a large lake of ice, then to a winding silver pathway leading into Heaven. The first scene made her think of God's greatness; the last, of the seemingly bright and happy path, tempting us in so many ways and leading away from the straight and narrow path which leads to eternal life.

F., 18, professes to have seen Heaven, with the great shining Christ on a throne of gold surrounded by thousands of saints, and the sheet of gold leading to the gates of the city, which angels seemed to open to admit a wayfarer and then to close. The fertile fancy of this girl also depicted beautiful faces, ball rooms full of dancers, or anything earnestly contemplated while looking at the clouds. She longed to put something on the prettiest cloud so as to detain it forever. The brightest clouds suggested rubies, sapphires and diamonds to her. She also fancied that the clouds grew tired, dipped their fingers in the water and, often shaking off the drops as rain, felt better.

The following are some of the more striking, whimsical or elaborate constructions.

One observer imagined a cloud map, having upon it the stages of her fancied trip to Spain, Turkey and the Pyramids; another (F. 18), that an old woman picked feathers from her geese and threw them down.

F., 21, as a child, that the sky was a huge picture gallery with the clouds for curtains; (M. 11), that the clouds help to make the rainbow a half ring and the wind blew beautiful flowers to complete it. Once, he saw "an awful pretty cloud just like the striped kind of ice cream, pink, white, yellow, brown, orange and every other color. The sun was as red as anything."

F., 19, when about eight, thought that the clouds were actually lined with something bright like gold, which was always resplendent as if the sun shone on it.

One imaginative child saw witches and beautiful finely dressed women prowling about. Sometimes they were moving swiftly as if to meet an advancing chariot which would take them away; sometimes while waiting they would grow old and ugly like the witches. One distinctly saw the beach with the water extending out and the waves rolling in, forming huge breakers as they neared the shore; and sometimes islands were scattered over the wide ocean. To one (F.) a certain face, appearing on a gloomy day is very clear; viz., when the clouds were dark, the head of an old man smoking a pipe.

F., 17, saw, one evening when the whole sky was flushed with sunset tints, five tongues of flame illuminating the west. They seemed to her the hand of the sun extending a parting benediction to the earth. On the Fourth of July, two years ago, she counted forty-six layers of ribbons lying parallel and horizontal on the sky.

F., 19, was wont to fabricate stories, partly believing them, about the clouds, *e. g.*, that they would give her a ride whenever she wanted to go away.

F., 18, once saw in red clouds, an exact representation of a ferry boat, at another time, a lion's head.

F. 17, on seeing the lightning flash from several places in a very dark cloud before a thunder storm, imagined it a house at night, in which lights flashed from the windows as some one moved about.

EMOTIONAL REACTIONS.

This may be used as a collective term for a number of psychic reactions, responses or impulses. The question, How did the prettiest and brightest clouds you ever saw make you feel, and what did they suggest? elicited rather trite commonplaces from the 47 children furnishing answers; twenty-two felt happy;—six, glad;—two, joyous;—one, nice;—one, cheery;—one good;—one, that he wanted to sit on them;—one, that they were bright to make God's home in the sky happy, and that she could reach them (F. 8);—one, that it was cruel for lightning to strike or cut them;—two, that they wanted to study them;—one (M. 7), "it did n't make me feel funny at all." One (F. 11) replied: "mamma says it is wicked to fancy shapes in the clouds; and two did n't know. Five said it made them think of or suggested, nothing;—two, the rainbow, the cloud in the one case being pink and blue;—one each, pretty flowers and pieces of silk, a good day and play, a bright day, that it would be warm weather, running and having a good time, summer, fire, heaven and home, God and whether I was good, mountains close together, not to be lazy, a glass window in church (the sunset), and boats sailing along.

The feelings of the older persons may be grouped mainly into agreeable and disagreeable feelings. We may suppose that any activity regularly, or frequently indulged in, or for longer periods of time, where no symptoms of morbidity exist, is a useful and pleasurable one. On this supposition, the love of or delight, pleasure or joy in watching cloud phenomena is a deep seated impulse. Fifteen reported they spent "much

time," or "many hours," or "every evening;" fifteen "used to enjoy," thirteen "often did," and over a score "used" to watch them.

The following is a tabulation of the articulate statements.

Fifteen stated that they found, and as many that they still find delight, great interest or pleasure in watching the clouds. Ten particularize the aspect of motion, moving along, floating by, passing over, changing from one to another, animals making a procession across the sky (F. 17), men and animals moving, (F. 23), (F. 21) used to watch the clouds for hours, marvelling at their motions, thinking that they had fallen near the horizon where the sky ended. They had for her the greatest charm of all the natural phenomena. (F. 21) took great delight in seeing the "lion trapped" and angels and persons (seen rarely) running across the sky in their attempt to escape God and come to the earth.

Ten express this charm in seeing, tracing and finding or comparing shapes, forms and resemblances, both those of the animate and inanimate world. One found this her favorite amusement, another made it her sunset occupation and then spent much time in describing what she saw.

Ten particularize on the sunset clouds;—five on the light, bright or fleecy, though to one the dark, were more attractive.

Four were filled with admiration by cloud beauty;—(F. 19), once was held spell-bound by the beautiful ones;—(F. 22), was very fond of the "mackerel" or "dollar" sky;—(F. 19), was made happy by the reddish-yellow suggesting fire;—(F. 21), can still recall with joy what she, at about 13, considered the most beautiful sight ever seen and how it remained with her all day, viz., the golden light and soft shadow thrown by the rising sun at dawn, once while driving to the station;—(F. 18), once beheld a cloud lady so beautiful and sweet as to nearly transport her with longings, giving her the highest ideal of loveliness in the world thus far experienced. To one, a particular cloud scene has remained; a large lake, with high mountains behind, and a large boat on the shore, in which it gave her pleasure to image what a good time she and her sister would have could they reach it;—(F. 25), sat long while studying the cloud "picture gallery;" the prettiest picture she ever saw filled her with awe.

Attitude of Wonder or Surprise. Three wondered why the clouds remained or how they were suspended in the sky;—(F. 20), being greatly perplexed over this after being told that the sky, which she regarded as their support, was miles above;—three, how they would feel;—(F. 22), if as soft as cotton;—(F. 19), still wondering about this;—two, why the snow banks did not melt on a warm day;—two, why they moved;—one

each: how the smoke could fall as rain, when told the rain came from the clouds, (F. 17), how it could get so high and so varicolored (F. 17), how clouds so beautiful could become so dark, gray and cold after the sun sank (F. 19), where they were when the sky was clear (F. 21), what the white was (F. 5), if the child seen while lying flat on her back watching them could see her, if the first clouds, sulphur-yellow, appearing at three o'clock on the morning of the Fourth were omens of some coming evil, and what would happen to the little house on the mountain side if Vesuvius should have an eruption.

The attitude of doing, wishing or yearning for. These longings were mentioned once each: to feel and sit on the "cotton" (F. 24);—to get up and stand on the "snow mountains" (F. 16);—to sink down and be covered over in the "featherbeds" (F. 18);—to hold some of the colored sunset clouds in her hand she admired them so immensely (F. 17);—to stretch her arms out, take a breath, and let herself go up in the air, she felt so light on seeing the beautiful ones (F. 19);—to poke the fingers in the pretty ones and go up or have them come down and play with him (M. 7);—to plunge into the "soapsuds" (F. 22);—to feel the light feathers (F. 20);—to go up to the pretty ones (F. 19);—to jump right into the middle of the cotton (F. 22);—to lie on the light fleecy ones, which we could lie watching by the half-hour, and be floated through the sky;—to follow some particular one (F. 18);—to follow Jesus, whom she saw radiant with white robes, ascending heaven (F. 19);—to get up and see the women or girls seen there (M. 5);—to have the child seen come down and play with her (F. 22);—to paint the most beautiful one ever seen (F. 17 at about five);—to have the prettiest stay always and get dresses of the colors of some;—to look at the bright pretty ones all the time;—to keep a beautiful sunset, it faded so quickly: would say, "O! mamma catch it, catch it, it's such a nice one," and, "O! I want a dress like that; pitty, pitty clouds," (F. 18, at about 5);—to get above the large, dark clouds, to see what was going on. She was positive God was fixing something he did not want seen; would look at the sky to find a chance (F. 19);—to have the favorite cloud pass the others in the race, becoming as excited as in watching a real race (F. 19);—to know how to ascend into the big piles of snow in the summer and bring down something to eat (F. 19);—to get to bed on seeing a very beautiful red and purple sunset cloud stretching wearily along the horizon;—to climb to the tree tops and slip off into the strong, fleecy substance floating upon the air as a boat upon the water, which he watched at the horizon for hours, and to float through the heavens. His parents caused him great grief by not allowing him to go to the horizon for this purpose (M. 21 Clark fellow).

Disagreeable feelings. Thirteen of these are of a mild character; twenty-five represent fear or terror, ten of these referring to the black clouds, and six to the possibility of the clouds falling down.

The following are the specialized individual feelings relative to different situations:

Sorry when a clear white, joined a dark cloud (F. 22);—felt very sad on being reminded of the death of a young acquaintance by a cloud, seen high in the sky just before sunset, producing a lasting impression. In color and shape it suggested an angel's wing (F., 25, at 15);—felt very badly on seeing smoke ascending in wavy, dark rolls, which made her feel sure that the sky would be all covered and that it would rain, but she often noticed that the rain did not "use up" the clouds; felt oppressed on gazing at dark, heavy clouds, but the appearance of the moon always soothes this feeling;—never liked to see the ugly, black ones, because they brought thunder when it rained (F. 19);—greatly worried at seeing a cloud in the sky, and would run to the house; she inquired every morning anxiously, "will it rain to-day?" When rain descended would cry violently till it ended (F., at four);—disappointment because the lions, camels, horses, etc., chasing each other would change into something else (F.);—even now, never likes to be alone on a cloudy day (F. 18);—even now feels she would smother if journeying in the clouds (F. 19);—another the same, but, picturing herself inside one and breathing all night;—a clear, blue, cloudless sky was always distasteful, but did not like a very cloudy day (F. 17);—felt clouds meant something undesirable, because rain was coming, hindering her outdoor play or plans;—gloomy (F. 17) and blue (F. 17) when watching the dark;—felt rather afraid, but still that "I would like to sit on them."

The following fears were indicated: that, while lying on the ground looking at them, clouds would fall down upon her, believing them very heavy (F. 5);—that the "smoke" would sometime fall down and smother her (F. 7);—that the lower of the fierce-looking thunder-clouds would certainly fall after piling sufficiently upon each other;—that a terrible thing might occur, for they might descend and envelop the earth, making everything white, so we could not see one another (F. 24);—that the large cumuli or "snow-banks" would come upon and destroy her (F. 22);—that this terror of clouds falling was so great that she would catch her breath; she even now has the same fear while lying on the ground (F. 23, at 8 or 9);—that the end of the world was surely coming, though she mentioned nothing; because, at about five years ago, one evening, she saw a peculiar orange-yellow appearance over

the sky, lasting for quite a while, throwing a strange light over all objects, which frightened her; she thought that the end of the world was coming, from a terrible fear at times on seeing a dark cloud (F. 19);—that something dreadful would happen, without definite idea of what this might be, when the horrible black ones appeared (F. 20);—that the long black ones especially were dangerous; she would run for the house (F. 21);—that there was a fire in the sky; when seeing feathery ones one day, being so alarmed that she called ‘mamma’ (M. 3);—that the angels seen looking at her would report her to God; hence she was restrained from doing many wrongs; to go to bed on nights after thunder storms with sky full of floating dark clouds; they would assume shapes of animals and giants standing just outside the window (F. 18);—(F. 21) was frightened by the face of a man which the clouds always assumed; (F. 16) by an angel seen when about six years old;—two children by the black clouds, associating them with rain and believing God was going to make rain. One of them always felt that if near home she must return there, was always unable to walk about during a shower and muscles would not act even with strong effort. Relief came with the end of the shower.

F., 18, while watching the clouds at sunset, saw a beautiful face look down upon her. She continued looking and was filled with happiness. Suddenly it changed to a face so terrible that she was filled with horror, rushed into the house and went to bed, feeling that there could be no more happiness for her that day. For a long time she lacked courage to watch the clouds again.

F. 18, had no definite feeling except that the clouds had a certain charm and made her want to look at them. She never loved them, or even enjoyed looking at them, as she does at the present time, and always shrank from them at night, because she was afraid they might carry her away, she knew not where.

One is again struck by the variousness of the appeal made by the clouds, or the responses to them. They can arouse impulses that run the entire gamut of feeling; that touch every chord of sentiment, from the smooth and gentle to the loud and terrible. The strongest feelings appear to be those of fear, longing, joy or delight, reverence and awe. The appeal is both æsthetic and ethical.

MISCELLANEOUS PROBLEMS.

The dependence of cloud fancies on special circumstances, characteristics, conditions, times, seasons, associations, etc., have already partly been alluded to by implication.

The importance of the rôle played by certain factors may here be particularized, and amplified or illustrated somewhat in detail. The splendor or color of the sunset clouds should naturally make these a prolific source of cloud fancy. Other

reasons may be; the leisure hour when they occur, the diminished intensity of light, lessening retinal pain, and the small obliquity or visual angle diminishing fatigue.

F., 17. As a child, imagined and continues to do so, the sunset sky as a beautiful sea with the clouds as islands.

F., 22, had fancies about and can vividly recall sunset clouds but can remember dark ones foreboding a thunder storm, which she noticed only because others spoke of them.

F., 6, often watches beautiful sunsets, and once asked if God painted the clouds.

F., 22, enjoyed watching the sunset clouds only.

F., 19, between the ages of five and six, believed that God painted them because they were so beautiful.

F., 20, states that during the last two or three years, the beautiful, fleecy clouds of sunset and the coloring from the setting sun has filled her with awe and reverence because of the mystery of their formation.

One child imagined a fire in the clouds lit up by the setting sun.

F., 18, that she saw in these, "the sands along the shore."

F., 19, when a child, frequently imagined that sunset clouds were all kinds of candy, edibles and ice cream.

F., 18, at sunset, often imagined a fish or animals with which she had come in contact, especially a flock of sheep following their shepherd, seeing even the crook over his shoulder.

F., 21, paid attention to the evening clouds only.

To one, sunset clouds looked like burning houses or forests, owing to the yellow and red; the white ones in the moonlight, like great castles, and again Eskimos walking on mountains of snow; and just before or during a thunder storm she was reminded of a black man walking on a hill.

(F.), often regarded the beautiful red tinted sunset clouds as a very distant, most magnificent palace, whose every occupant was always happy; but the soft white clouds were always angels hovering about and the very dark ones concealed some horrid monster. One observer saw cities and seashores oftenest at sunset, but mountains in the white clouds.

Another always watched for the rain-man and thunder-man, who fought battles in the dark clouds rapidly forming before a thunder storm, imagining the rain-man whipped and his tears making the rain.

One child saw forms only in the light clouds; the dark ones frightened her.

F., 22, liked white clouds better than gray ones; she was sorry when a clear white cloud joined a dark one.

F., 20, was fond of watching the light fleecy clouds though the dark ones were far more attractive to her. She watched them only in summer.

To F., 21, clouds with a beautiful silver lining seemed to burst open and throw out hordes of wild animals.

F., 18, saw billows and furrows in the high streaked white clouds only; snow banks and animals in the large white masses, but piles of white stones, of all sizes, in the small scattered ones.

F., 17, saw white marble palaces in the white clouds upon which the sun was shining brightly.

To F., 18, the clear blue sky with a few white clouds always seemed like the water at the seashore on a summer day. With less blue in the sky, she saw chariots and faces, but during a storm or just before one, she thought of fierce wild animals, and a thunder storm brought up a vision of contending armies, the lightning being the flash of their swords.

One watcher saw large men flying from the storm in the black clouds. (F. 19), said the blue clouds always reminded her of a blue silk dress she had when very small.

One observer (F.), only recalls noticing cloud colors, doing this especially when the snow was on the ground; she considered the blue as blue velvet, the white as white fur, the former being the background, the latter the trimming.

One's favorite watching-place was the seashore;—another's, the lake;—one's, a certain hill;—another's, a hammock.

One scarcely watched them except when riding;—two, only in the summer;—one, most frequently with her sister, lying on a laprobe placed on the clover;—three, lying on the ground.

Positional time. At what period does the cloud impulse reach its hey-day? The evidence from the reminiscent returns is of this character. The vague term "used to (see, imagine, think, feel, enjoy, etc.)," was employed 61 times; "often," 34 times; "sometimes," 26; "still do," 25; "always," 18, and "when I was a child," 32. Nearly all of these refer to the more generic, or hum-drum, experiences, and none furnish any clue. Neither do the following: "once" (15), "one evening" (6), "one day" (6), or a special day mentioned (4), "one morning" (2), 32 in all; but, unlike the former, these are all specific; they are indelibly impressed upon the soul, owing to their striking character. But in no inconsiderable number, 52 in all, the experience or experiences, not at all specific, are located in time. We may arrange these guesses in five groups according as the time is stated (1) as at "*about*" year *a*, 18 in all, averaging 8.4 years; (2) as "between" or "from" year *a* to *b*, 16 in all, averaging 5.5 for the lower and 9.4 for the upper year; (3) as not "until" or "before," 9 in all averaging 10.7; (4) as at year *a* "or" *b*, 6 in all, averaging 9.6 and 10.6; (5) as at year *a*, 3 in all, averaging 8. The total average is nearly 9 years (8.8), which from these records, appears to be the period when, if not at their high-water mark, these fancies are the most easily recalled or precisely located. The true value, if such can ever be found, would perhaps be pushed lower down the scale. In reminiscences, the discrimination would be against correctly locating the most distant, not the most recent.

Origin. The school of Kühn and Max Müller place the sub-structure of mythology in language. Myth in Greek signifies originally, merely something spoken, a word. It is so deter-

mined by language as to be, in a sense, a "disease of language." Words may become agencies, reacting upon the mind, shaping its concepts, creating its fancies, formulating and crystallizing its beliefs. In myth making the elements of highest, operative efficiency are synonymy, polyonymy, poetical metaphor, the gender of words, etc. The effect of these factors is observable in the mythopœic processes of present-day mythology.

Tyler, however, and the school of anthropologists which he represents, look for the foundation of mythology in real and sensuous analogy. It conceived, in analogical projection, that forms, colors, objects are assimilated, associated, compared with other similars and often invested with their nature. Hence the same mythic processes may be traced in the savage mind of to-day or, though perhaps in diminished degree, in its analogue, the child's. And let us not forget a fundamental mental propensity of the modern disciplined mind to hypostatize the concept.

These two points of view are antithetical only in semblance. Both appeal to the same psychological fundamental, the apperception center. Both may furnish an empirical basis or criterion largely applicable in the present attempt to trace the origin of cloud fancies.

It may be willingly conceded that this procedure of linguistic interpretation is not a faultless index, that, at best, it is acceptable only under proviso, that, in many cases, it may not adequately portray the actual empirical processes or psychoses involved in these visions, phantasms, or imaginings; for these states of mind are often so penumbral, quasi-conscious, or submerged, or such vague borderland, revery, or dream-like phenomena, that the process that strives to give them utterance not only misconceives their interior essence, but is itself a "blooming confusion." Thus much such phrases as these, conned from the returns, indicate: "I think that I really believed what I imagined I saw as real," "it seems to me as if I might have fancied that I thought of it as," "I knew they were not, but actually always thought of them as," "it seemed to me that I seemed to look at it as being." These phenomena, however, are not all fancies of this vague type.

In forty-six cases the expressions were simply a clear cut "I saw," or "have seen," or "could see," or "would see;" in seventy-three, "I thought," or "always thought," or "used to think," or "think that;" and in seventy-eight, "I imagined," or "fancied," or "pictured," or "represented," or "tried to do this," or enjoyed doing this." But they are not even all pure fancies, or intentional fictions, as the latter terms especially would indicate. There are a few instances, nine in all,

where the writers avow their firm conviction of the reality of the fancy concerned. We may assume that many remained reticent on this point, thus greatly reducing the figure.

Eighty expressions were used involving comparison, such, *e. g.*, as "looked, appeared, or seemed likely, associated with, was suggested by, thought of as." In these cases, it is safe to say that the principle of association or apperception furnishes an adequate explanation.

The following are specific cases, in addition to those already given in previous sections, in which this principle is of undoubted validity.

Many could, did, or always would imagine the scenes or form the images of characters or places from stories heard or read;—one, (F.), usually never seeing any but these;—one, (F.), imagining especially those in Grimm's Fairy Tales, *e. g.*, Cinderella, and certain Bible stories, *e. g.*, people with animals going into the ark at the time of the flood;—two, (F.), especially those from Mother Goose Rhymes, *e. g.*, the cow that jumped over the moon, the old woman who went to sweep the cobwebs from the sky, Taffy was a Welshman, etc.

F., 16, felt greatly surprised when told that she merely fancied the things she saw.

F., 21, felt that her forms were not strictly original but like the pictures in books.

F., 21, would sometimes see white horses hitched to a chariot, with a great king as driver like a picture seen in the Bible.

F., 19, imagined she could see Pegasus, the winged horse, and his rider, Bellerephon, flying through the clouds.

To F., 22, fairy tales suggested that Queen Mab and other fairies had beautiful, shining horses beyond the clouds, of which she could get glimpses at sunset. She knew that it was visionary but it still gave her much pleasure.

F., 17, thought that the "Great Bear," of which she had heard, was made of clouds.

F., 19, as a child, saw "Old King Cole" smoking his pipe and his slaves bringing his fiddle.

F., 17, after her first geography lesson, saw North America in the clouds on her way home from school.

F., 15, while studying clouds in geography, imagined them assuming shapes of continents, sometimes one cloud showing them all in succession.

Another student of geography saw the sand storms, about which she was studying, in the dark clouds.

One child, after being told that the "hump-back mountain," plainly seen from her own home, was Mt. Tom, looked into the sky and saw a cloud of that shape, calling it Mt. Tom.

Another could see the details of the mountain scenery, even the roads, of her Vermont home.

A school girl on her way home pictured the battles of the Civil war, with guns, soldiers, etc., she had heard recited. She

was so interested in watching the cloud-battle that she ran against a man proving to be an uncle she had not seen since one year old; the scene is just as vivid to-day. Another saw armies marching in battle array, and fighting as never one could fight, suggested by pictures of battles where the smoke from the cannon rolled about in vast volumes;—(F. 23), once, at about eight, after reading her Sunday school lesson on the resurrection, saw a very large and beautiful pearly cloud resembling a figure in flowing robes; she immediately connected it with the "Risen Saviour;" for a long time she was awe-struck; she watched evening after evening for another similar sunset cloud, but has failed to this day.

(F. 16), at about five, after the clouds had cleared from a cyclone, saw the light, foamy ones on top with a layer of darker ones beneath and thought the cyclone, the sky's egg-beater, from seeing, a few days before, an egg beaten in a glass dish, leaving the heavy or only partly beaten part in the bottom.

The following instances of personification, anthropomorphism or symbolism are too complicated for the principle of suggestion to adequately account for them.

F., 18, considered the clouds and winds as enemies, the latter driving the former around with a stick; when indifferent, they were white, when angry, black.

M., 3, thought that they were actually walking;—F., 19, that they were brothers and sisters trying to catch each other, finally becoming an immense cloudful of rain;—that they were real people and animals;—F. 22, that they actually chased each other across the sky;—that they grew tired.

Thus a very large proportion of these phenomena may be traced to suggestions derived from external nature, to tales or stories read or heard and to the nursery yarns of old grannies.

How many are due to reversions, or ancestral adumbrations, as automatically operative without any external prompting, is a question opening up a wider phase of this inquiry.

SEC. 2. IN LITERATURE (MATURE ADULTHOOD).

In a field with a literature so voluminous as that on clouds, an attempt at condensed compilation must follow a set of certain rather rigid principles of selection, determined by its avowed purposes. With purely physical cloud determinations we are not here concerned; but with facts or opinions illustrative of their psychic influences, potentialities or possibilities, interpretations and significations. The object will be to fully represent the views of the writers, though often in quite different phraseology.

The point of view is the poetico-æsthetic. As Huxley¹ has

¹ Aphorisms by Goethe, T. H. Huxley: Nature, I, 9. London, 1870.

well said in commenting on Goethe's aphorisms on nature. "Long after the theories of philosophers are obsolete, the vision of the past will remain as a truthful and efficient symbol of the wonder and the mystery of nature."

No pen could be sufficiently under the spell of the magician to adequately paint, by word or pen, the marvellous æsthetic effects possible in cloud-land. The grandest of these are not work-a-day occurrences, but separated by the span of months, years, decades, or generations. Happy he who is prepared for and counts their brief and unheralded visitation. In the following references to remarkable occurrences of cloud scenes, the names are mostly those of meteorologists, who are not expected to record thrills of æsthetic delight and ethical expansion, but explanatory hypotheses. Accordingly, however luminous, these declarations certainly do not overrate our standpoint, but quite the contrary.

¹ Piazzi-Smyth mentions two large clouds with smaller ones of brilliant iridescent colors, seen Dec. 11, 1885, at Edinburgh, about sunset. They were 10° or 12° high and the largest one showed a diagonal streak of glowing green shading into blue, with exquisite violet tints on either side, and the whole surrounded by dull red. With the sky peculiarly dark and sombre, behind and around, the magnificent spectacle suggested mother of pearl inlaid in a black tea-tray. The phenomenally bright smaller specks gradually lost the green band while passing into yellow and orange. These masses were higher than a neighboring heavy cumulo-stratus cloud.

² Clark states that this new phase of cloud glow was fringed with prismatic colors, in threefold layers in some places, and he distinguishes its stages.

Backhouse,³ of Sunderland, saw the same marvellous appearances daily from the 6th to the 13th, except the 9th, though the effect was striking only at sunrise and sunset. He saw no dark clouds; they appeared thin, like a flattened sheet, arranged in bands like "Noah's Arks," somewhat striated transversely. On some afternoons they had a faint smoke-like tail on the eastern side, resembling an aurora, though horizontally placed; the shapes approached rectangles, one being a perfect right-angled triangle; the motion was slow, the height considerable, the appearances altogether unprecedented.

The Derby Express⁴ characterizes the appearance seen at

¹ Iridescent Clouds; Piazzi-Smyth: *Nature*, 31: 148. New York and London, 1885.

² Iridescent Clouds; Clark: *Nature*, 31: 148. New York and London, 1885.

³ Backhouse: Iridescent Clouds. *Nature*, 31: 192-193.

⁴ Same, p. 193.

sunrise on the 11th, as a dense pallium of cirrus cloud, appearing like a spindle-shaped, elongated opening some 30° high, exposing an intensely emerald sky, which at about eight o'clock was replaced by a "mass of brightness comprising all the prismatic colors" arranged in transverse bands, shading gradually into each other, whose shape resembled a "huge many-colored eye" set in a uniformly dark cirro-stratus. A patch of brightness upon a silvery gray background remained for some time after sunrise.

Ianson of Darlington, who saw three distinct and two faint bands, on the 13th at 4 P. M., regarded the colors as due to interference of light, or residual and not prismatic, the lower being light purplish pink shading into green, and those adjacent the bright brick red of Newton's rings, the remainder being pink and green.

Watts, on the Yorkshire Wolds, on the 6th and 13th between three and four P. M., saw only the edges of the rifts tinged with rose color. Geelmuyden, of the University observatory, Christiana, where the phenomenon was also observable, points out five previous similar occurrences between 1871-1882, and notes that the most striking effects have appeared when mild dry weather has set in after frost. A year later, occurred another exhibition of iridescent or nacreous clouds, wonderful in its changing beauty.

Hollis² regarded these peculiar brilliant and attractive sunset glows as a new phenomenon.

In Greenhow's³ observation of the magnificent display of iridescent clouds, the prismatic colors were strongly marked, the pearly brilliance of the delicate cirri, intensely striking, all in a setting of orange afterglow. Backhouse⁴ was struck by the magnificence of the three or four colored spectra, chiefly pink and green, projected upon a purple sky. Unlike the phenomena of the previous year this exhibited no straight contour lines and there was little blue in the coloring. According to Piazz-Smyth⁵ the yellow, orange and vermilion reds were lacking, while blue, violet and rose-pink dominated. The lower portion of the sunset sky presented a gorgeous panorama of the yellow clouds with red variants. In seven letters, reprinted from the Scotsman, one writer expatiates on the large number of minute rainbows, "no larger than the sun appears," with red, orange, yellow and green distinctly dis-

¹ Geelmuyden: Iridescent Clouds. *Nature*, 31: 264. London and New York, 1885.

² Hollis: Sunset glows. *Nature*, 33: 198-199. London, 1885-86.

³ Greenhow: Iridescent Clouds. *Nature*, 33: 198-199.

⁴ Backhouse: Iridescent Clouds. *Nature*, 33: 198-219.

⁵ Piazz-Smyth: Iridescent Clouds. *Nature*, 33: 198-219.

cernible; one on a band of high light cirro-stratus above a clear belt resting upon a heavy bank of storm cloud, which was fringed on the sunside by most vivid and delicate prismatic bands, blue outside, red inside, the latter spreading into a "splendid band of violet;" one, on the inexpressible beauty baffling description of these noble effects seen in the morning and evening; one, on how the water glow deepened as it ascended to a dark crimson or purple, and how the cirro-stratus, bright and luminous above, was encircled with rainbows—the most beautiful cloud display which he, an observer of the heavens for thirty years, had ever witnessed.

¹ Davison delineates in detail the progress of this enchanted sunset, how the forms and colors changed, though the group remained apparently stationary, and Stevenson,² the sunrise, whose banded colors excelled at times the brilliancy of the rainbow.

The effect noticed a couple of days later—crimson-flushed bands of light cirri, glorious and iridescent upon a background of blue, the rapid changes of the varied colors—Davison found it impossible to describe; it surpassed all previous glories seen by him in the sky. The following traces the stages of the changes of one cloud for a few minutes only.³ 4.5 P. M., right end hazy; then follows green, yellow, orange, and red; blue, green, yellow and red; red tinged with purple; bright purple; and red and green.

4.11, both ends hazy; pink in the haze, and blue; yellow, green, and orange; green; red, blue, red; ending in green in the haze.

4.18, longer and narrower; green; green, yellow and orange; green; red; green; red.

4.21, the orange band (3) invading the green band (2).

4.22, the red band (5) growing brighter.

4.25, red and orange bands (3) and (5) spreading and becoming like the predominant colors.

4.27, general hue reddish orange, the orange and red bands much brighter than the others; light haze; hazy; red; green; bright red; greenish; orange red.

These changes continued till 4.36, when a rising cloud obscured them.

⁴M. C. Carinsel states that these appearances are common in Switzerland during the winter season and finds the cause in "diffraction of light by fine particles of ice."

¹Davison: *Nature*, 33: 202. London, 1895.

²Stevenson: *Nature*, 33: 220.

³The order is always from left to right.

⁴On these effects consult also:

Nature, 33: 219-220, 292, and *Nature*, 35: 533, 581.

Another effect evoking great interest, resembling the iridescent only in height and brilliancy, are the luminous night-clouds¹ which are usually noticed in the northern quadrants, but are also seen in the southern as startling displays of white "aftersheens" or silver blue cirrus cloudlets. They are apparently seasonal.

Piazz-Smyth, on issuing from the observatory at 12 o'clock, one night in July, when there is usually a colored twilight above the sun's locus, was "surprised and even startled" at the sight observed. It suggested a great city on the plains of Fife in a state of fierce and extensive conflagration. The awful burning redness at the horizon was topped with lemon-yellow, and this by even brighter silver-blue cloudlets, whose innocent color and gentle beauty "exorcised the horrid idea of malignant flames devouring the works of man." He considered this some phase of auroral display.

To behold cloud pictures, says a writer, one should be "drowsy, dreamy, full of fancies," and through a sort of imaginative intoxication "ready to mould shapes corresponding to the ideal types in the mind." Thus one may behold in the sunset, "green islands in golden seas, with promontories and headlands jutting out into bays of amethyst, encircled or overhung by mountains, towering in rainbow tints to the empyrean," and every moment brings a new delight in the glorious spectacle.

He describes a likeness of the celebrated Olympus, seen once, so stupendous a picture and so "excelling in vastness, grace, beauty, and rapturous sublimity," any work of art that his whole being was thrilled with a sort of ecstasy. Magnificent cities, arches, domes, spires, columns, temples, theaters, mountains, uplands, rocky projections, defiles, eminences with trees, hanging crags, were all luminous, kindled with flaming splendor. Upon the huge vaulted roof in the Mediterranean sky, a traveller, on ship-board, beheld a fleet in full sail with hulls upward and masts and rigging downward. He knew that it was the armament of England pursuing the fleet of the French and Spaniards which, at that time, was cruising near Barcelona.⁴ The beauty of such a scene consists in the exact reproduction of shape and size, the faithful reflection of colors and the great multiplication of objects. Armies may also be thus reflected from the clouds. Hence the superstitious age of tradition mistook these for spectral hosts, flourishing their

¹*Cf.*, Nature, 34: 192, 239, 264, 311. Nature, 40: 151, 544.

²*Cf.*, Nature, 36: 245. Nature, 46: 589.

³*Cf.*, 39: 537.

⁴Pictures in the Clouds: Chambers Journal, XLV, 820. London, 1968.

weapons while charging each other in the sky, These rumors becoming famous, were transferred to remote countries where skeptics could not investigate them. The Greeks told of such battles being seen by the dwellers on the coasts of Italy and Sicily.

The most sublime cloud scenes are the momentary glimpses, at night, as the lightning pierces and illuminates the thunder clouds. One such spectacle made the peaks, crags, and raging torrents of the Alps seem tame in comparison. The grandest aspect was "a stupendous tunnel, miles in height, and of immeasurable extent, through which the eye penetrated into the very womb of chaos." The sides were "ribbed with columns," the vault "glowed and coruscated with living light," and in the midst of all, thunder pealed and roared in perfect frenzy. The same writer's eloquent description of the *Fata Morgana* and other glorious cloud pictures repay reading.

Hutchinson¹ records a glorious sight, witnessed twice from mountain crests in India, a vast expanse of purest flocculated wool beneath and pure cerulean above. Most interesting and amusing was another observation of three thunder storms about a mile apart; the storm-clouds increasingly appeared to advance with a business-like, determined resolve to triumph over their enemies in this warfare. The constantly increasing fire of the artillery was the most remarkable fact. He has often stood at the seashore or on deck entranced, and wondering at the mystery and glory of the heaped-up, grotesque, everchanging, snowy cumuli at the horizon, which sometimes spread into illimitable vistas;—approaches, as it were, to the "plains of Heaven." "Can any understand the spreadings of the clouds?" asked Job of old. Can any one witness uninterested and unmoved the delicate, feathery forms of the cirrus, momentarily assuming new splendors without effort, the dark, lowering nimbus approaching in solemn grandeur, fitful, lightning flashes rending its dark recesses; the terrible warfare of battling clouds in the cyclone, manifesting the might of Him "who maketh the clouds His chariot," and "walketh upon the wings of the wind," and the utter impotency of man; the glorious effulgence of tints thrown by the rising or setting sun upon the surrounding clouds?

No vision more beautiful or life-like can be imagined than the city of Madras, on July 18, 1888, as seen for an hour or two, placed upon a flat plain surrounded by a magnificent girle of cloud mountains, some black and frowning, some snow-clad, as grand and lofty as those boasted of by Scotland or

¹ Hutchinson: *Height of Clouds*. Knowledge, X: (N. S. II) 268-269. London, 1887.

Switzerland. To approach these was like entering a pass, and again crossing the Bernese Oberland, with alpenstock in hand.

An anonymous writer,¹ finds his pleasure from clouds, which have done service to the poet as objects of grandeur and beauty and to the moralist as emblems of vanity and perishableness, to be due more to their alternations of color than the various movements. The hues are produced from ten colors; the green are rarest, the blue most numerous, followed by red and yellow.

He beheld one evening in the western sky, "a marvellous conflagration of scarlet clouds, delicate lines of cloud of wondrous effulgence, at once bright, soft, ethereal, remote, melancholy, pure, so suggestive, so elevating, so accusing by their extreme beauty and purity, as to lead the mind away to regions of ineffable tranquility and light unsullied; so that on its return to the gloomy earth it can but mourn the ills and sorrows of men."

Characteristic of the sky is its diversity and grandeur of scenery and the daily changes in the color, shape, height, and aggregations of clouds.

The stages of the sunset are, first, an amber warmth, slowly deepening to orange, then imperceptibly changing to scarlet, then, that hue of crimson, above all others, pure, soft and pen-sive as the luster floods the west and completes the magical chord of beauty of inexpressible, clear, shadowless color.

The writer bemoans the apathy with which people generally regard the flushed heavens, the burning filaments of clouds, their wild contortions: to call attention to their wondrous beauty elicits either surprise or disdain. He expresses the desire of following the sun around the world to obtain one continuous sunset.

Once or twice in a lifetime, the sky may be flecked with "minute cloudlets thick as falling flakes of snow," from horizon to zenith. If the light catches this at right angles, a scenic display results outdoing any earthly pageantry. At these blazing wings of seraphim one gazes entranced with awe and reverence, mute with wonder and delight.

He describes in eloquent phrase the various cloud formations under varying conditions, and feels, on beholding the glorious clouds of dawn, his heart partaking of the "lightness of the air." Ideas of cold, discomfort, loneliness and solitude are instinctively associated with the wide uniformity of water and cloud on a rainy day at sea. Earth presents few images of such desolation and cheerlessness.

¹ The Highway of Cloud. Littell's Living Age (from the Dublin U. Mag.,) CVIII: 305, 314.

"Oh, for the wings of an albatross, to sweep the trackless wastes of air and gaze unlimited over the wide floor of ocean below, and cleave the clouds on a flight of a hundred leagues!"

The desire to soar to the "spirit-land of ineffable tranquility," on beholding the distant cloud islands in the azure, "fair of form and full of repose," "comes like an instinct."

Another writer comments that of the two landscapes always visible to man, earth and sky, the upper and finer seems reserved for birds and poets or for an occasional forlorn face that turns from earth to sky for fairer hope or justice. Occasionally a person is found watching the night skies, but who gazes at the clouds by day?¹ This indifference should be overcome. By using an appropriate camera obscura, a lens in a box with dark curtains, or the Claude Lorraine glass the vast landscape is brought to a convenient focus, "mellowed and softened."² A glass clouded with a colorless smoke-tint will answer. This protects the eye from the intense light of the noonday, and will open an avenue to a new world of glorious celestial cloud-landscape.

One should become a deliberate cloud spectator, as at a theater. "There are wonderful mountains among them, with sheer precipices, and shadowy caves, and Alpine crags; dark towers, such as Childe Roland blew his blast before; minarets and domes, with mysterious arabesque of oriental tracery; serene ocean shores, where the gray sand glimmers through a shoaling blue, and the round-breasted galleons sail smoothly over."

Gazing continuously and dazzled into the upper sky for some time, "the color, or the very depth and boundlessness of it by and by seem to inundate one's brain." "Delicate brain-fancies float and feed tranquilly in this inflooding tide of the blue heavens." "Nor is all this without its possibility of solid scientific usefulness. It suggests profound problems of a scientific character."

Sometimes the clouds make faces at each other, merry or solemn according to the mood. Both on wall paper and in cloud-tapestry the profiles generally look from right to left. I perpetually see faces in this wise. Is it because one sketches profile with the right hand, with the projection accordingly to the left?

The clouds are nearly always calm, peaceful and quiet in comparison with their restless analogues the ocean waves,

¹A Rhapsody of the Clouds. The Atlantic Monthly, LVII, 254. Boston, 1886.

²The Poet Gray is said to have always carried a common lens on his daily walks that he might always obtain an image of the landscape.

though they are never still. A fine description of the scenery of the thunder storm is most realistic. "Suddenly a flash of lightning may reverse the light and shade, the gloomy cloud walls gleam out intensely luminous, while the towering shaft of intervening sky is dark by contrast and so starts forward tangibly from the distance, like a momentary incarnation of some black genie of the Arabian Nights."

We may gaze upward at the cloudless sky-dome elevated to its serenest height so long "that we drowse a little" or seem to lose ourselves in space, a second sleep, "the floating out of consciousness into the deeps of outer existence." It is, thus, not wonderful that one's "reason gives way to fleeting fancies; our reveries run into them."

Tennant¹ believes that beautiful color fringes, which he hardly suspected were a novelty, because common in his observations, are always present in high cumulo-strati or strati, or along the edges of dark clouds when the sun is shining behind them all, but that they are obscured by the brightness of the cloud, or the glare of the lower air.

To destroy the coruscating glare, he advises suitable dark glass or the dilution of the tints with white light, which at the same time strengthens the tints.

To the immortal Ruskin is due the awakened cloud consciousness of the last third of the century. He strove to arouse men from their artistic lethargy by pointing out the plethora of æsthetic wonders pervading nature's every work. He made cloud gazing a respectable avocation, not for the few but the many.

To him, nature has nowhere else done so much for the manifest purpose of pleasing man, of directly talking to him and instructing him, as in the sky. Yet to this, of all nature's wonders, we attend least. Most people's ideas of it are devoid of pictures rather than the reality. Man detracts from the noblest scenes of earth by his constant presence; but the sky is for all, fitted to perpetually comfort and exalt the heart, and strengthen and purify it from dross. "Sometimes gentle, sometimes capricious, sometimes awful, never the same for two moments together; almost human in its passions, almost spiritual in its tenderness, almost divine in its infinity, its appeal to what is immortal in us is as distinct, as its ministry of chastisement or of blessing to what is mortal is essential."²

Turn to the chattering crowd. One says the sky has been wet; another, windy; another, warm. But who can describe

¹ Tennant: *Colors in Clouds*. *Nature*, 33: 343, 514. London, 1885-86.

² Backhouse: *Colors in Clouds*. *Nature*, 33: 486. London, 1885-86.

³ Ruskin: *Modern Painters*, 201-203, Vol. I. London, 1867.

the vast sunlit chains of mountain precipices seen above the horizon to-day, or any other day. All is gone unseen, unregretted. Yet "it is in quiet and subdued passages of unobtrusive majesty, the deep, and the calm, and the perpetual; that which must be sought ere it is seen, and loved ere it is understood; . . . things which are never wanting, and never repeated; which are to be found always, yet each found but once; it is through these that the lesson of devotion is chiefly taught, and the blessing of beauty given."

The most majestic cloud, the only one usually noticed by ordinary observers, the cumulus, is mostly windless, proceeding with a "solemn, continuous, inexplicable" movement as if controlled by some will, it is in its grotesque and endless divisions and brilliancy, surpassing all color, as "transitory as a dream."

The rain clouds, the "Angel of the Sea," the "spreadings of the clouds," come in the trial or hurricane-storm, "leaning forward, one thrusting the other aside or on top; impatient, ponderous, impendent, like globes of rock tossed by Titans—"Ossa on Pelion—but hurled forward, all in one wave of cloud-lava. Fierce behind them rage . . . the Rain-Furies, shrieking as they fly;—scourging, as with whips of scorpions"¹ . . . gorgeous, who are not dead but ever undying.

The chief masters of imagination confessedly derived their noblest thoughts from the flying clouds and not from the beautiful flowers or majestic mountains. Yet the Pegasus of England is swifter, though not often so terrible as the Hellenic. Here he races, darts and dips from crag to dell, not like the gray and withered Graiae, but like a greyhound "following the Corinthian stag with golden antlers."

As observed by Aristophanes these lower rain clouds are distinctive in always moving horizontally in an oblique position with the base sometimes advanced.² The following specific characters are ascribed to the upper clouds, symmetry, sharpness of edge, multitude, purity of color, and variety. Owing to the quiescence and multitude of the high clouds they may be regarded as "cloud flocks," "flocks of Admetus under Apollo's keeping."³ Ruskin calculates, on the basis of the number per row, that he saw 50,000 separate clouds in the field of sight, during one morning. They resembled pine branches with snow on them rather than sheep.

No sensation of number,⁴ which is most felt when symmetri-

¹Ruskin: *Modern Painters*, 142-145, Vol. V. London, 1160.

²Ruskin: Vol. I, 145. (Ed. 1867.)

³Ruskin: Vol. I, 113. (Ed. 1867.)

⁴Ruskin: *Modern Painters*, Vol. I, 216, 221.

cal, can be so impressive as the infinitely numerous bars, lines or undulatory masses of clouds. Not one of their many millions is without its separate beauty, or uniqueness, although types of one symmetrical system.

The variety of color is marvellous ; the sky, especially at the zenith, does not retain a uniform color for two inches ; one cloud presents a cold blue fringed with milky white ; another above it, a purple fringed with red ; another, nearer the sun, an orange bottom with an edge of gold, all merging with the sky.

The color depends upon the opacity by which they reflect light strongly, and their sponge like capacity to absorb light. Aristotle and Leonardo noted that vapors looked russet or red "when a warm light was seen through them and blue when viewed in the shade. But flakes of finest scarlet are often seen on deep purple grounds."

Near clouds present only subdued or uncertain colors ; distant ones, catching and reflecting the solar rays from beneath, golden, purple, scarlet, and gradations from intense fiery white.

What value ought this attribute of clouds to possess in the human mind ? what should be the psychic reactions to clouds ? are questions propounded but not solved, by Ruskin.¹

A writer in the *Spectator* pays a high tribute to Ruskin for teaching men to look at not merely glance at these pictures which "symbolize in their silent beauty all that is most dramatic in the changes of human life." No battlefield ever abounded in more unexpected turns than this of cloud-land. Now the storm is in preparation ; the squadrons are flying in hot chase ; the contingents have become a compact army ; the battle is on ; anon the hordes are suddenly sundered. Presently, the flying squadrons again combine, and thus the story continues.

The clouds mirror, in their varied influence, far better than words, every mood, monotonous gloom, gentle melancholy, joyous brightness ; the ties of human companionship and sympathy. They follow us, if we will but raise our eyes, into dreary and squalid places, converting darksome hovels into palaces of light. Another writer laments with Ruskin that the only purpose of the sky interesting man is to bring up a large, black rain cloud, every third day or thereabouts, to water the earth. In popular estimation, clouds are only bags of water for appeasing the thirst of Mother Earth.^{2 3}

¹ Ruskin: Vol. V, 123-125. (Ed. 1867.)

² Clouds: The *Spectator*, LXIII, 331. London, 1889.

³ Clouds: Temple Bar, II, 230. London, 1861.

Yet here is a stage with scene upon scene, picture upon picture, glory upon glory. Here may be found the highest manifestation of the beautiful and the sublime. Even apart from clouds, the sky is peculiarly adapted to excite the deepest emotions. The rain clouds are admirably fitted to excite the imagination of the lover of nature. Opaque and heavy, or transparent, wet, formless, with the sun shining and blue piercing through their interstices, they are a highway of the imagination with fresh delights at every turn.

Bigelow¹ regards the clouds, the moving tableau of living pictures, the most beautiful objects of the sky. No work of art can elevate the feelings to so lofty adoration of the marvels of nature as the colored glories of sunset and sunrise. The delicacy of tint and hue in the spectrum focus are second only to the dancing auroral beams, or the "star clusters of the nebulæ in the milky way near the Southern Cross." An illuminated cloudlet may contain a million intersecting rainbows.

Wise² laments modern apathy for the beauty of cloud-land. The ancients did not fail to notice it. The Scandinavians erected their creed, gods and goddesses upon it; the storm-cloud inspired the story of the Odyssey and solved the mystery of Œdipus.

The Fathers were profoundly impressed by their beauty, moral motifs and religious incitements. St. Chrysostom spoke of the second meadow, that in the sky, with starry flowers, "the rose below, the rainbow above," more beautiful than palatial roofs; and reproaches men for gazing downward like the swine of earth instead of at the beauteous roof of the Maker, which the poor may enjoy even more than the rich. Yet lack of appreciation of this source of blessing on the part of the rich and the poor,—the latter being forced by the stress of circumstances to regard the matter from an economic standpoint,—is all too potent.

The greatest pleasure in watching the clouds, the feeling of change answering to the changes of the spirit, cannot be reproduced on canvas. The heavenly canvas is supremely democratic; it belongs to him who enjoys it; it is painted afresh daily. The influence of the clouds on the multitudes is illustrated by quoting a number of weather-saws or rhymes, on which Shakespeare's finest descriptions are based.

The English peasant, however, associates the beautiful with the useful. He hypostatizes the clouds, names them after natural objects: the "lamb storms" and "pewit storms," signifying the season of yeanning the lambs; the "bullfinch skies,"

¹ Bigelow: *The Formation and Motions of Clouds*, 495. *The Popular Science Monthly*, LX. New York, 1901-02.

² Wise: *The Clouds and the Poor*. *Fortnightly Rev.*, I, 570-601. London, 1865.

denoting the "warm vermilion tints of sunset clouds;" the "rock clouds," or the cumulo-strati, the "snow and wool packs" or the cumuli, etc. The symbolism is true—as true as Tennyson's "daffodil sky."

To the shepherds of the plains, of the Iliad facing the sea from high hill-tops, the clouds became a constant source of joy or fear. They joyfully hailed in the summer and spring: the "water-dogs," the "gossamers" heralding fair weather, fearing the "sun-galls," Shakespeare's "water-galls," or the glorious but wrathful broken rainbow patches; "the messengers," "water-streamers" and amber "wheel-clouds," or the "burrs."

To the fisherman's mind the rain is "dirt" from a "dirty sky," the "water-gulls" have changed to ugly "sea-devils," evil portents of tempest, the flying storm clouds to "the flying devil and hisimps;" the "dyer's neif" (fist) represents the small purple cloud,—the Yorkshire fisherman seeing the same resemblance as Elijah's servant on Mt. Carmel, "the dromedary cloud," "the hunchback cloud," Shakespeare's "camel cloud," a white, compressed, humped cumulus, foretelling heat in the southern, and cold in the northern hemisphere.

The cirrus is a "cat's tail," the cumulus, a "ball of cotton," the "weasel," "hog," or "wind-hog," the "whale," "bridge" or "feather-cloud," etc.; and "crow buds," "cherry flowers," "tree-clouds," "pigeons," "flying fish," "streamers," "plumes," signifying that in fair weather the cloud-land is the fisherman's meadow, his garden, his fairy-land, peopled by a mighty host.

In Sec. 12, Act IV, of Antony and Cleopatra, Shakespeare takes full recourse to the language of the naïve naturalism or personification of the peasant and the sailor, "who more than any one else recognize the terror and beauty of cloud scenery."

Weather prognostications or forecasts are often based on cloud situations.

The following are typical indications: ¹

A red sunset, fair weather; a red and lowering morning sky, foul (Matt. 16: 2-3); or, in Bacon's words: "red clouds at sunrise, foretell wind; at sunset, a fine day for the morrow," and, "clouds before sunset of an amber or a gold color, and with gilt fringes, after the sun has sunk lower, foretell fine weather;" narrow, horizontal, western past-sunset clouds, rain before 36 hours; brassy-colored western sunset clouds, wind; cold, dark blue, gray and reddish yellow masses, cold and snow;

¹ For a very complete collection, consult Inwards: Weather-Lore, 84-100, London, 1893, from which most of these signs are conned.

² Cloud Colors, Nature, 16:43. London, 1877.

Archibald: Clouds and Cloudscapes. Eng. Ill. Mag., XI, 571-575. London, 1894.

light, bright gray with bright edges, hard frost ; sharply defined black clouds, rain ; lowering and massing together of detached clouds, impending wet weather ; after black clouds, clear weather ; dark western sunrise clouds, rain on the same day ; clay-colored and muddy ones, rain and wind (Bacon).

"If clouds be bright,
'T will clear to-night;
If clouds be dark,
'T will rain,—do you hark?"

Greenish tinted composite southeast clouds remaining several hours, indicate a succession of gales and many rains (Prince); feathery clouds like palm branches or the fleur de lis, immediate or coming showers (Bacon); thick equidistant patches of feathery cirri, definite streaks of alternate sky and cloud, and regular repetitions of the same form, storm ; little detached masses of wool, or knotted feather-like cirri of unusual figure, moving rapidly, great disturbances ; cirri with bottom level and streaks pointing upward, rain, but if downward, wind and dry weather (Howard); when unusually low and dense, a storm from the opposite quarter, the bar or ribbed cirrus being as good a danger signal as the barometer (Russel); "If clouds look as if scratched by a hen, get ready to reef your topsails then." The "salmon" or "Noah's Ark," stretching east and west foretells a coming storm, but if north and south, fine weather, except in Eifel of the Lower Rhine, where "north and south are the sign of drought ; east and west, the sign of blast." The mackerel sky is a sign of fair weather for the day, rain on the next or following.

"Mackerel sky and mare's tails
Make lofty ships carry low sails."
"Mackerel sky, mackerel sky,
Never long wet and never long dry."
"Mackerel scales, furl your sails."

Cirro-cumuli in winter indicate warm and wet weather; a morning sky dappled with light cirro-cumuli, a fine and warm day (Jenyns); clouds rising out of the west, showers (Luke 12:54); clouds approaching and diverging from a point in the horizon, a wind from that or the opposite direction (Best); clouds moving across the wind, a storm in the air; dark ones driving fast under higher ones in a cloudy sky, violent gusts of wind ; an increasing white cloudlet of the size of a hand to windward a storm sure (I Kings 18: 44, 45); a fast growing cloudlet in violent motion in the tropics, the "bull's eye," terrible hurricanes; dark cloudlets (broken nimbi) floating against a bit of blue sky, rain before sunset (Prince); cirri merging into cirri-strati and increasing and lowering at even-

ing, wet weather; visible increase of clouds and decrease of clear sky, rain; a clear sky becoming spotted everywhere, an early rain.

In the writings of the Bible Ezekiel's vision projects in bold relief. He saw the heavens open; a whirlwind came out of the north, a great bright-edged cloud, containing a fire with an amber color in its midst, presented four living creatures in the likeness of a man with four faces and four wings each, straight feet, having soles like those of a calf, human hands under the wings on the four sides. The wings were joined two and two and they went forward without turning. The faces on the right side were those of a man and lion, on the left, of an ox. They sparkled like colors of burning brass, appearing like burning coals of fire and lamps; lightning proceeded from the fire, like whose flashes they "ran and returned." They appeared and acted as a wheel within a wheel. The wheels moved with them for these contained the spirit of the living creatures. The noise of the wings sounded like that of great waters or a host, like the voice of the Almighty. A voice was heard above, when they stood and dropped their wings. Their wings were high and dreadful and full of eyes. The firmament extended over their heads like the color of a terrible crystal, and contained a throne like a sapphire stone with a man upon it, surrounded above and below the loins by a fire, bright as the bow in the rain clouds, the likeness of the glory of the Lord. He fell upon his face overcome with terror and the awful majesty of the vision.

John, in one of his visions, saw an angel clothed in cloud descending from Heaven. "And I saw another mighty angel come down from Heaven, clothed with a cloud, and a rainbow was on his head, and his face was as it were the sun, and his feet pillars of fire." (Rev. 11.)

Daniel, in a night vision, saw one like the son of man "coming with the clouds of heaven to the ancient of days." (Dan. 7: 13.)

The significant role played by the clouds in the primitive religious consciousness is attested by the many biblical references to them and the important mission assigned to them.

They are symbolic or emblematic of earthly vanity and transitoriness; man's welfare and prosperity shall vanish just as they do (Job 20: 6); whatever goes down to the grave is "consumed and vanisheth away" as a cloud (Job 7: 9);—purgation from sin; transgressions may be as easily blotted out as a thick cloud (Isa. 44: 22);—the marvellous or inexplicable or wonderful; who can understand their spreadings or balancings. (Job 36:29);—the faithfulness, beneficence, power, glory and pervasiveness of the truth of the Almighty; His faithful-

ness and truth extend even to the clouds (Psa. 36: 5, 57: 10; 108: 4).

His strength is manifest in them. The whirlwind and the clouds are His chariot and he veils His glory behind the clouds. "He holdeth back the face of His throne and spreadeth His cloud upon it" (Job 26:9). His way is through "the whirlwind and in the storm" and the clouds become "the dust of His feet."

By means of a cloud He guided His people through their wanderings in the desert. "And the Lord went before them by day in a pillar of a cloud, to lead them the way" (Ex. 13:21).

The clouds served as a reminder of the promises of the Infinite. "I do set my bow in the cloud, and it shall be for a token of a covenant between me and the earth," (Gen. 9:13.)

It was in the clouds that the Almighty made His appearances "And the Lord said unto Moses, Lo, I come unto thee in a thick cloud, that the people may hear when I speak to thee and believe thee forever." (Ex. 19:9).

The cloud always covered the tent of testimony by day and the appearance of fire by night. The tabernacle or tent was so filled by His glory, through the cloud abiding upon it that Moses was unable to enter (Ex. 40:34).

While Peter was speaking to Jesus at the transfiguration a cloud overshadowed them, and in the ascension He was received out of the sight of the apostles in a cloud (Acts 1:9).

The Lord is to appear upon the mercy seat in a cloud (Lev. 16: 2); the son of man in the clouds of heaven with great power and glory is to judge the world (Matt. 24: 30; Mark 13: 26; Luke 21: 27; Rev. 1: 7); Jesus declared to the high priest that He shall be seen coming thus (Matt. 26: 64; Mark 14:62); at the resurrection those alive and remaining shall be caught up in the clouds, to meet Him in the air (I Thes. 4: 17).¹

In the poem "Clouds," by Edgar Fawcett, clouds are brief, lingering moods of heaven's deep heart, "tireless pilgrims," "towering Alpine peaks," "pale plateaus," "pearly gossamers" filming the sky, "scales on fabulous dolphins' backs," "ghostly silhouettes," and "spirits with garments fluttering white" noiselessly walking "the great, awful emptiness of the night."

Tabb, in a poem, compares the soul with the cloud, in itself

¹ The following may be consulted: Shelley's poem on "The Cloud" which is one of the most successful attempts, whether in ancient or modern poetry, to portray what it sets out to describe.

Proctor: Forms of Clouds. (Knowledge II, 178), describes an optical cloud illusion.

Harper's Magazine, 18, New York, LIV, 1877.

devoid of beauty and heaven's light, a foul vapor, a veil of nothingness.

SECTION 3. IN MYTHOLOGY (PRIMITIVE ADULTHOOD).

The word mythology has come to embrace the legends, traditions, sayings and fairy tales of a people.² There is no rigid demarcation between these. They all constitute chapters in primitive human reactions to sensations of sight and sound, to things looked at and listened to, things solar, lunar, side-real, the clouds, wind, rain, dew, fire, mist, storm, thunder, lightning, forests, mountains, the world above and the world below; in fact, to any natural phenomenon capable of exciting the emotions of wonder, awe, fear, reverence, or, in a word, the quest for the secret mysterious core of things, the absolute spirit. Cox³ defines mythology as "simply a collection of the sayings by which men, once upon a time, described whatever they saw and heard in the countries where they lived." He tells us that we may look upon it as "something exceedingly beautiful, on which much dust has settled disfiguring some parts and hiding others." But we can now sweep aside the thicker layers of this and again behold the true and beautiful thoughts which underlie them. The disagreeable features are but perversions, distorted renderings of the original meaning of words which expressed originally only simple thoughts of childlike men on the wonders of the natural world. In us, as in them, joy and sorrow, fear and hope, wonder and reverence are aroused by the manifold phenomena of earth, sea and sky. The road for the study of comparative mythology was first cleared by Max Müller⁴ closely followed by Kuhn⁵ who tells us that "the foundation of mythology is to be looked for in the domain of language." Myth, in its original meaning, is merely the Greek synonym for a word; later it came to be applied only to things relating to the gods, the narratives of their acts, descriptions of their abodes and attributes. These were not intentional fictions, though founded on visions, dreams and vague mental states. Ritual was derived from the myth, but only when this had lost its original meaning. Many peoples with a vast storehouse of myths have no ritual at all.

Mythology originates in the psychic, not the external world. Myths are not "figurative explanations of natural phenomena" nor "vague memories of ancestors and departed he-

Harper's Magazine, 199, New York, LV, 1877.

²Cloud. The Childhood of Religions, pp. 96-98. New York, 1892.

³Cox: Manual of Mythology, p. 14.

⁴Max Müller, 1856: Chips from a German Workshop.

⁵Kuhn: Die Herabkunft des Feurs und des Göttertrunks, 1859.

⁶Brinton: Religions of Primitive Peoples. New York, 1897.

roes." They are neither "philosophic speculations" nor "poetic fancies" but of distinctly religious origin; the insight, though it be but a dim one, into the divine. Their *form* and *expression* are derived from language. Primitive languages materialized thought, for their terms are predominantly concrete and objective. Their generical distinctions are more deeply ingrained and carry with them an idea of reality not found in our purely formal distinctions; an object spoken of as masculine or feminine became positively male or female. Thus the gods were classed as male or female.

Many myths sprang directly from words through paronymy, - *i. e.*, similarity in the sound of words (Müller, Kuhn).

In the course of development, myths of one deity were often transferred to another, divine attributes to a human type.

¹ Mythology has its roots in the primitive religious feeling; religion does not develop from mythology.

The meaning of the Greek myths was found by comparing their words with their earliest records, the Vedas, the older Sanscrit having preserved the first forms of the words.

To the Aryans, these stories were not pretty conceits; they believed that all moving things, the sun, the moon, "the fleet-footed dawn" were all endowed with life. And this same belief² appears in the nature myths of the more primitive peoples of to-day who attribute personality to inanimate objects, and in the notions³ of young children regarding their toys.

The bulk of Aryan myths arose from the ideas evoked by the ever varying scenery of the heavens, the myriad changes of the clouds, the brilliant hues of sunset, the tender light of dawn and the shadowy forms of twilight, the dawn being the most prolific source. Some, however, have their origin in human feelings and experiences; and fabulous events have become history, while some simple facts of human experience have been transformed into myths.

To the Aryans, cattle were as the camel to the Arab, the buffalo to the Red Indian; the standard of value, the symbol of fruitfulness, a treasure to be guarded. Their enemy was the cattle thief, their friend the cattle saver. Thus to them, heaven was the great plain over which roamed bulls and cows, symbolized in the fleecy clouds and their strong protector, the sun. The dark clouds were the retreats of the wicked monster stealing the cows and imprisoning them in the "caverns of the piled up mountains," sucking up all the water and shut-

¹ Religions of Primitive Peoples. Brinton.

² Maj. J. W. Powell in introduction to Cushing's Zuni Folk Tales and Stevenson in Report of Bureau of Ethnology, 1889-90, p. 68.

³ *Ped Sem.*, Vol. IV, 129. A Study of Dolls: G. Stanley Hall and A. Caswell Ellis.

ting off light and heat from men. Only by the protector killing this huge black thief (Veda, Vrita, serpent, wolf, black one), could the cows be restored to their pasture. Thus with Indra (Veda), with the storm gods accompanying "comes bel-lowing, with fire (the sun's rays or lightning) flashing forth and his horns tossing in anger." The monster is slain, the rocks rent asunder and the light and rain released.¹

The danger of the early stages of human thought lay not in its poverty but in its superabundance of language. The clouds could be "described by a thousand names," each representing one of these countless aspects. Each characteristic could be found, however, in more than one object. The clouds bestowed nourishment upon the parched earth; the cows to hun-gry man;² the same word functioned as a common carrier. The cow was the moving animal, the horse from its speed, was named asvan, and, from its color, harit; and all these names were applied, first, to attributes of the sun and later the sun himself. From this process arose a wealth of metaphor which has resulted in a multiplicity of myths bearing within them-selves the mark of their origin.

Cloud myths include not only the cattle of the sun, Nephele, Phryxus, Helle and Pegasus; in Aryan lore the sky represented a blue sea or lake with clouds as ships, of which Charon's boat was one, sailing over it, or swans gliding across its azure depths. Across its surface also glided the "gilded shallop of the sun."

The Aryan's word for cloud and mountain was the same. The cloud and mountain myths are thus often identical. Niobe, a personification of the clouds, has children, the mists, rivalling Diana and Apollo in beauty, and they are ruthlessly slain by the sharp arrows of the jealous deities. Niobe's grief dissolves her into a rain of tears, congealed into ice on the mountain crest. She is also considered a personification of winter, her tears being the thaw due to the sunbeams (Apollo's arrows). The beautiful and wonderful forms of the winter snow-cloud also find embodiment in Niobe weeping herself into a stone on the summit of Mt. Sipylus. The Sphinx, the winged hound of Æschylus, is the black cloud which withholds the rain, the ravens of Odin or Wuotan are the cloud which blast and the cloud which restores the parched earth, "the one causing fam-ine and sickness the other restoring the earth to life."

Many of the Hellenic mythical beings derive their character-istics from phrases relating to the colors and forms of the clouds though many of the names are neither Greek nor Aryan. The

¹ Cloud: *Childhood of Religion*, pp. 197-109.

For discussion of the different schools of myth interpretation see Saussaye: *Manual of the Science of Religion*, p. 206.

² Cox: *Mythology of Aryan Nations*.

Graiae and gorgons may be only the gloaming and the night. The ugly face of Medusa is the ghastly vapors of the night.

The first exploit of Hermes, born in the early morning in a cave of Kyllenian hill, after making his lyre was to go at sunset to the Pierian hills and steal the cattle of Phœbus which, however, he was forced to return. Hermes is derived from the same root as Saramâ in the old Hindu or Vedic tales, and the meaning of the myth is revealed as the dawn creeping up in search of the bright cows (clouds) stolen by the night and concealed in its dark caverns. The same root, sar, reappears in Sarpedon, son of Leus, and serpent, a creeping thing. Saramâ thus becomes the soft breeze of morning, and Hermes the wind.¹

The magic ship of the Norse gods, Skidbladnir, which can carry all the gods of the Teutonic Olympus, but may be folded so small that it can be carried in the hand, typifies the swelling and shrinking of the clouds as the wind carries them across the blue depth of the sky. ²The Zuni folk tale of the serpent water-god whose mighty length trails across the town and far out on the road as he carries off the maiden who has invaded his waters, but whose serpent scales diminish to a tiny handful as he lays aside his serpent form and becomes a beautiful youth, may be traced to the same source.

The stealing of the golden fleece is but the transference of the sunlit clouds from the gloaming to the dawn. Before this can occur, the light (Helle), in which they basked at sunset, must be entirely extinguished.

The beauty, ferocity and seclusion of the Amazons "harmonize with the phenomena of the clouds in their varying aspects of storm and sunshine."

Clouds take the shape of swans and eagles in both oriental and occidental traditions. The eagles carry Suryâ Bai on their wings through the sky. ³In the Zuni legend the eagle bears the youth who has become enamored of her to the home of the eagle people in the regions of the sky and, laying aside her eagle dress, appears as a beautiful maiden. The ancient Indians personified the delicate white cirrus cloud flakes into Ap-saras⁴ bathing in the heavenly lake. Laying aside their snowy plumage and assuming human form they sported in the limpid waters. They are the houris of the Vedic heaven "receiving into their arms the souls of heroes," sometimes descending to earth to become the brides of mortals, but the union is never a lasting one and sooner or later the swan maidens return to their heavenly abodes.

¹Cox: Manual of Mythology.

²Cushing: Zuni Folk Tales.

³Cushing: Zuni Folk Tales.

⁴Apsaras—those who go into the water.

¹Among the Minussinian Tartars the swan maidens assume both beautiful and loathsome forms. They are the fierce raging demons of the air dwelling in the "raven-black rocks, the seventeenth region of the earth." Sometimes they are forty in number but again they are merged into one, as the scattered clouds mass themselves together and lose their identity in one overspreading darkness.

The classic swan myths are numerous. The Hellenic swan was the bird of the muses and thus of Apollo. At the birth of the golden haired deity, the swans coming from the golden stream of Pactolus circled about Delos seven times. So the white clouds circle around the rising sun.

To the ancients, the clouds were not mere aggregations of vapor but "cows driven to the milking by Hermes, the summer wind; a great sheep with moist fleeces slain by the unerring arrows of Bellerophon, the sun; or swan maidens flitting across the firmament, Valkyries, hovering over the battlefield to receive the souls of fallen heroes; or mighty mountains, piled one above another, in whose cavernous regions the divining wand of the storm god, Thor, revealed hidden treasures." To the Hindus the rain clouds were celestial cattle milked by the wind god. The Aryans saw the clouds as Phaiakian ships with bird-like beaks or bright birds of divine shapes and colors, the light fleecy cirri were mermaids, swans or maidens with swan-like plumage. The Danish Mara, the Hindu nymph Urvasi, her kinsman, the Gandharvas or cloud demons, the cloud nymphs were all discerned in the drifting and ever changing clouds. The Valkyries, Odins attendants, battle maidens, invulnerable and immortal so long as they remained obedient, were, together with their steeds, the personification of the clouds, while their glittering arms were the lightning flashes. At the injunction of Odin, they swooped downward and conveyed heavenward on their white horses over the "quivering Bifröst" the fallen heroes worthy of Valhalla. These maidens were conceived as having dazzling white arms, flowing golden hair, silver helmets and burnished spears and shields. Hoar-frost and dew fell from the glittering manes of their steeds. Myths of the swan maidens are among the most beautiful and widely distributed of all legends. Their variants are legion but through them all runs the idea of the winning of a supernatural maiden by a mortal and the inability to retain her. In Germany and Sweden, the birds are swans or geese; in Russian tales, spoonbills, and in oriental legends, doves.

¹Baring-Gould: *Myth of Middle Ages*.

For Swan Legends see "Baring Gould, *Myths of the Middle Ages*."

²Fiske: *Myths and Mythmakers*, Boston, 1888.

Among the Esquimaux they are vaguely characterized as sea fowl, and, in the legends of American Indians, they become hawks or eagles.

Akin to the swan myths are some of the repulsive forms found in classic literature. The "bent clawed birds" of Aristophanes, the Harpies who tormented Æneas and his companions, the malignant progeny of the sea god Nereus, the gorgons, with their brazen claws and snaky locks, were personifications of the storm cloud in its more destructive forms and accompanied by hail, icy winds and blasting thunder bolts.

The Aryan myths constantly recognize the close connection of earth, light and vapor. No one myth can be classified as a specimen of one definite class. The language applied to the darkness is applied also to the gloomy storm vapors which appear as the monstrous Polyphemus or as the three daughters of Phorkos who have but a single tooth and possess a single eye in common. These "swan shaped" Phorkides, corresponding in Norse myths to the ravens of Odin, represent two distinct classes of vapors, one inducing famine and sickness, the other revivifying the dead earth; sometimes both are neutral, neither wholly malignant nor kindly. In the Arabian Nights, the roc guarding the huge diamond egg in the valley of diamonds (the starry sky), is the rushing vapor which sweeps across the face of the sun blotting it from view.

In Greek mythology the storm cloud brooding over the earth but rainless, became the Theban sphinx or the Pythian dragon; and the rain clouds, the Hyades or rainy sisters. Almost every mythographer has a different account to give of them. They are the daughters of Atlas and Aithra (the heaven and pure air) or of Oceanas, the water or Erechtheus, the earth. Thus the myths repeat the generation of the clouds,

"I am the daughter of earth and water
The nursling of the sky." (*Shelley.*)

their names denoting their fructifying, vivifying and destructive powers.

Nephele, while the mother of the children whose disappearance caused the Argonautai to search long for the golden fleece, is strictly the representative of the mist or clouds, and her two children, Phryxos and Helle, the ether and the bright clear air of day. As Helle wearied with her long journey falls into the Hellespont and is drowned so must the evening light completely die out before the dawn can arrive, and as Nephele returns to her cloud home, on discovering that her husband Athamus (the sun) has wearied of her, so the morning mist vanishes before the glowing rays of the sun.

¹ Guerber: Myths of Northern Lands.

The effect of color on the emotions is one which, though as yet little studied, is recognized in the symbolic use of color in nearly all primitive religious cults, in the poetic literature of both ancients and moderns and in the love of brilliant color which is characteristic of nearly all primitive tribes. Though little has been done experimentally, the subject is one of great interest and worthy of investigation. While the import of the color varies considerably, it does not exclude some general tendencies.¹ "The white and the blue are usually of cheerful and peaceful signification, the black and the red are ominous of strife and darkness. In many tribes the yellow bore the deepest religious meaning. The Mayas of Yucatan assigned it to the dawn and the east." The Aztecs sang about the bed of the dying "Already does the dawn appear, the light advances. Already do the birds of yellow plumage tune their songs to greet thee." The colors of the sand and altar paintings of the numerous cults of the American Indians all have a symbolic meaning.² The Kiowa Indians and associated tribes make the use of mescal (*Anhalonium Lewinii*) a regular part of their religious ceremonies. The use of this drug is productive of wonderful color visions though its mental effects are extremely slight. So great is the fascination of this color intoxication that, though complaint has been made at Washington by missionaries and others and its use forbidden by law on the reservations, the rite still persists and has become the chief religion among all the tribes in the southern plains.

Nowhere in the outer world can the color sense be more fully satisfied than in gazing at the clouds. There is little wonder that we find the classic myths describing the many tinted garments of Iris, the saffron-hued robe of Aurora, the golden hair of Apollo and the glistening chariot of the sun.

From this analysis of myths we find among primitive peoples a love and appreciation of nature which clothed itself in the images suggested by their environment. Delight in the beauty of natural forms, wonder and awe at her mysterious workings, foreboding and terror raised by nature in her sterner moods, joy and gladness in the clear air, bright sunlight, and fleecy clouds, gloom and sadness under the overcast heavens and shrouding mists, all find their expression in myth and folk tales. The tendency to personify all forces not understood, and to explain natural phenomena by attributing them to supernatural agencies is common to primitive man of all races

¹ Mescal Buttons: D. W. Prentiss, M. D., and F. P. Morgan, M. D., Medical Record, Aug., '96.

² Mescal Plant and Ceremony: James Mooney. Therapeutic Gazette.

³ Brinton: Religions of Primitive Peoples.

and in all ages. ¹ "All primitive men are mystics. In their simple aspect, the fear born figments are grotesque shadows or fantastic duplications of actual things moved by malignant or capricious motives, like those of human kind; in somewhat advanced thought the figments are more complex, and incarnated chiefly in self-moving things and invested with enlarged and intensified autonomy; while in the higher stages of primitive culture the figments are idealized into mystical potencies conceived to actuate the objects and powers of the universe in accordance with impulses and motives such as those observed to control human action."

Comparing the results of the analysis of myths with the data obtained from the questionnaire, endeavoring always to keep strictly within the limits of the facts presented, what correspondences and what diversities do we find? From the data given in the returns on which this study is based we find in 25 cases that cloud manifestations, especially those of storm clouds, roused varying degrees of fear, in some instances amounting to positive terror, and in one case to actual paralysis of the motor functions. In ten more cases disagreeable feelings of a milder character were aroused. In a Study of Fears published in 1897, out of a group of 1,701 persons 44 had fears of clouds and their forms, 603 of thunder and lightning and 16 of fog. The ancient Aryan myths tell us of the fear inspired by Thor, hurler of thunderbolts, of the terror roused by the furious Maruts, attendants on Indra, "who overturn trees and destroy forests," who "roar like lions and are as swift as thought," who "shake the mountains and are clothed with rain," and of the supplications addressed to Zeus who smites with thunderbolts. The Sioux Indians address prayers to the "thunder being" whom they regard as a maleficent power. Among the children, fear of the black clouds as bringing thunder or some undefined harm, fear of clouds falling and, in a lesser number of cases, fear of being carried off by clouds, are the more typical classes of fears, while many cases are purely individual and traceable to some specific association.²

The idea of the dark or thunder clouds as bringing harm is common in the individual history of the child and the history of the race. In the latter it had a substantial basis in experience. In the former, the basis of experience is far too slight to account for the intensity of the emotion aroused, and for its explanation we must turn from the history of the individual to the history of the race. Between the child's fear of being car-

¹ W. J. McGee: Primitive Mysticism. Report of Bureau of Am. Eth., 1897-98.

² A Study of Fears: G. Stanley Hall, *Am. Journal of Psychol.* VIII, 147-249.

ried off by the clouds and the myths of Ganymedes and the Valkyries, there may be a possible parallelism but the data is insufficient to warrant any assumption.

The sentiment of longing aroused by the clouds is common both to the child and the adult. In the latter it is usually of a moral or æsthetic nature; in the child it is a definite desire to touch or reach the clouds or to use them as conveyances. For the expression of this sentiment as well as those of wonder, joy, delight, sorrow, pathos, and awe we may turn, not to one myth but to many. Myths of the swan maidens who inspired love and longing in the hearts of mortals by their wondrous beauty, the joyous aspects of Phœbus Apollo, the sorrows of Niobe and Nephelê furnish us with abundant parallels. Less poetic in form than the classic myth but equally expressive of feeling, though in perhaps a cruder state of development, is the Chippeway legend which attributes the flush of the morning "to a beautiful maiden who is painting herself in her lodge in the sky."¹

A comparison of the functions of clouds as given by children with the cosmogony of some of the North American Indians furnishes some interesting coincidences. The functions most commonly attributed to the clouds by the children were "to make rain," to protect the sky, "to make the sky look pretty," to hide the sun, to keep us from seeing God and the angels, etc. In the cosmogony of the Sia Indians as gathered by Mrs. Stevenson² we find "The cloud, lightning, thunder and rainbow peoples followed the Sia into the upper world, making their homes in springs similar to those they had occupied in the lower world. The cloud people are careful to keep behind their masks which assume different forms according to the number of people and the work being done. Behind these the cloud people are laboring to water the earth. The rainbow people were created to work in Tinia (the sky) to make it more beautiful for the people of Haarts (the earth) to look upon; not only the elders making the beautiful bows, but the children assisting in this work. The Sia have no idea how or of what these bows are made. They do know, however, that the war heroes travelled on these bows." In Sia myth the "Sun-Father" also wears a mask.³ In the cosmogony of the Zunis obtained by Mr. Cushing, "the warm breath of Mother-Earth blew the white flecks of foam off the primeval waters, so that, meeting the cold breath of the Sky-Father, they fell down in gentle mist and spray, whence came all life."

¹ A. F. Chamberlain: *Journal of Am. Folk Lore*, Vol. IX.

² M. C. Stevenson: *Report of Bureau of Ethnology*, 1889-'90.

³ A. F. Chamberlain: *Primitive Nature Study*, *Transactions of the Canadian Institute*, VI, 313.

The forms seen in the clouds by children are so evidently products of environment, in many cases being directly referred to their sources, and so varied that the only legitimate inference to be drawn from them is that, while the picture making impulse is common to the child, the primitive peoples of ancient times and the modern savage, the particular forms in which it finds expression are, in large measure if not wholly, due to environment. As it was a natural association for the ancient Aryan to see cows roaming over heavenly pastures, for the Norseman to see ships sailing over blue deeps, so the child to-day sees in the clouds the animals and natural forms to which he is accustomed, or peoples them with images drawn from fairy tales or it may be from his geography or history lesson.

From the material thus presented how far are we justified in claiming parallelism between the development of the child and the development of the race? (1) The data obtained from the questionnaire returns show that there is present in the life of most children a period when cloud psychoses form no inconsiderable portion of the mental furnishing. So far as can be judged from the limited number of returns, this cloud tropism begins at about the age of five and apparently reaches its maximum somewhere between the ages of ten and fifteen. But the limited number of returns, the fact that they are largely furnished by those of approximately the same environment, and the lack of data for ages beyond twenty-two or three years forbid anything but a provisional statement upon this point. Both myth and folk lore testify to the prevalence of this same tropism among primitive peoples and to its powerful influence upon their moral, religious and æsthetic development. (2) So far as the psychoses are of an emotional nature we find an almost complete parallelism between the history of the child and the history of the race; also that the intensity of the emotion in the child, especially in the case of disagreeable feelings, is disproportionate to its immediately traceable antecedents, a fact which points to vestigial traces of a more primitive stage of existence when man was still at the mercy of the uncontrolled forces of nature.

(3) The anthropomorphic tendency so markedly present in the cloud reactions of primitive man exists also in the child, and though the modern child is early robbed of his illusions, the *feeling* often persists after intellectual assent to its substrate has been destroyed.

The pedagogic value of this cloud tropism is worthy of consideration since it furnishes an almost universally available means for the cultivation of the powers of observation and imagination and the development of the moral and æsthetic emotions. Children in whom the phenomena of the natural world awaken no reactions have been cheated of their birthright;

their imaginations are dwarfed and crippled by disuse, their moral and æsthetic feelings are undeveloped and they are less capable of emotions of awe and wonder, not only for nature but for the power behind nature. ¹"To the solid ground of Nature trusts the mind which builds for aye." He who has never looked with seeing eye on the cathedrals of nature reared by the towering trees or the fairy palaces builded by the clouds, cannot understand the inspiration of the men whose genius raised the cathedrals of the middle ages. He to whom the colors of the sunset sky have never appealed may wander through miles of picture galleries and come away no whit richer for all the wealth of color which the old masters lavished upon their canvases. To him also the door of much that is beautiful in literature is closed, for only nature holds the key. We hear much of Nature Study for children in these days but the 18% of negative returns in the syllabi which have furnished the data for the present study constitute a plea for a wider diffusion of the teaching that shall give sight to the eyes which see not. A half-hour twice, or even once a week, systematically devoted as a regular part of the school exercises, to watching the colors, motions, changes and positions of clouds, would have a practical value in relieving the overstrain of the eyes from close application.² The subsequent writing down of all impressions would furnish an exercise in language study and the mental life of the child would be enriched and broadened.

¹ Wordsworth.

² Slightly smoked glasses should be used whenever the light is of sufficient intensity to fatigue the eyes.

THE CONTACT OF "HIGHER" AND "LOWER" RACES.

By ALEXANDER F. CHAMBERLAIN.

The contact of "higher" and "lower" races is at present one of the most important phenomena of human sociology. The writer has here no intention of discussing this subject in all its varied details, desiring merely to emphasize a few points which his own experience with primitive peoples and a rather wide acquaintance with the literature of the question have shown to be of paramount significance.

The Childhood of the Race. While we are busy rescuing the individual child from "the clutches of the adult," primitive peoples, who may be said to represent the childhood of the race, are being treated as once he was. We are laboring to prevent "the big fist" of adults from breaking in upon childhood and its evolutionary activities; we ought also to labor to prevent the bigger fist of "civilized races" from breaking in upon the like evolutionary activities of primitive peoples with even more disastrous results. As childhood was once sacrificed upon the altar of classicism, so there is now great danger of the child-like races falling victims to Anglo-Saxonism. And if they do, the struggle for return to same doctrine will be even longer and more difficult than that which is to-day achieving the complete freedom of childhood and youth from the shackles of Greek and Latin. With our experience of the classic prison for the individual child, we ought not to put the race-children in the Anglo-Saxon jail. The sane spirit that impels us to consider the interests of the individual in matters of education among our own people, ought also to lead us to recognize the rightful personality of every race in the civilization of mankind. If we will not *force* those with whom our influence is greatest, we surely must not those with whom it is least. If we decline any longer to exterminate the criminals in our midst, we surely have no call to hunt to the death the savages of far-offlands. We ought to be as fair to the "naughty race" abroad as we are to the "naughty boy" at home. If we are abandoning the old unscientific methods of treating the one, we ought not to make them the basis of our dealings with the other. The genial first-things of humanity are just as worthy of our admiration in the childhood of the race as they are in

the childhood of the individual. And, as the individual child and children, among us, inspire the greatest and noblest acts and ideals, so ought the civilized peoples to be inspired and stimulated by the child-like races still existing. Silvaticide is no more justifiable than infanticide. To destroy a race is just as great a crime for the civilized nation as to extinguish the life of his offspring is for the individual parent. The child-like races are here for the purpose of preventing the so-called "higher" races from cutting altogether loose from the moorings of the child-ideals, which are really the evolutionary ideals, just as the child exists to keep his parents from drifting too far away from the essentially human feelings, thoughts, actions and aspirations. Without primitive peoples, the world at large would be much what in small it is without the blessing of children. Races and nations, no less than individuals, need the inspiration of the child. It is through this only that they shall enter the democracy of earth, which is destined to be the complete fulfillment of the dream shadowed forth in a monarchical age as "the kingdom of heaven." When the final account comes to be written, it may turn out that nature, in answering the question, "Who is greatest among you?" has taken one of the child-like peoples, whom the strenuous apostles of modern civilization affect to despise, and "set it in the midst of them." We deceive ourselves utterly if we think she is going to cast the race-children to the void. They will ever be the bases of her great alchemic processes by which man's seeming dross is turned to gold. Like the individual children they are the essentially and typically human beings, whose lines of evolution, ended as they began, would mean the full development of all human possibilities. Of them we can say, as was said of the individual child, "Whoso shall cause one of these to stumble it is profitable for him that a great millstone should he hanged about his neck, and he should be sunk in the depth of the sea." The curse upon those who ill-treat the child-like races is identical with that visited upon the deceivers and abusers of the individual child. There is a "cry" of the child-like races as well as a "cry of the children." The fate of the national and that of the individual oppressor are one. Both shall have good cause to remember that

"the child's sob curses deeper
Than the strong man in his wrath."

The Victory of the Vanquished. Vae victis! Woe unto the conquered! How often, where might makes right, has this cry issued from the lips of triumphing armies and peoples at whose feet another lay prostrate. It is the creed of such that the extermination or suppression by physical force of an alien

or an "inferior" race entails the complete victory of the conquering one. Into the limbo of eternal oblivion must pass the vanquished. The peoples whom victorious Assyrians, Egyptians, Greeks, Romans, Spaniards, Anglo-Saxons, have crushed to pieces in their "expansion" are as nothing in the future story of mankind. One race is to triumph. Before it all other peoples must fade. There is no history for them. Their fate is sealed, and the victor race enters into complete enjoyment of the "promised land." The war-like bards of the "higher" races sing their pæans over the "march of civilization" and hymn the deeds of "the strong who went up and possessed the land." Other poets write the epitaphs of the races that have gone to the wall. The closing years of the nineteenth century have witnessed a carnival of such beliefs. Even America has been unable to resist the strain, and has gone in for "the strenuous life," which has always meant the enfeeblement of political and national morality. The two great Anglo-Saxon nations of the world have lost their heads and joined in a common hunt of the weaker races. They have followed the example of the gilded savagery of Europe and set themselves to the task of destroying *naïve* uncivilization all over the globe. Black, yellow, brown and red races are now the prey of the white to an extent hitherto unequalled in the world's history, because never before so accessible, and because "war as a civilizer" is still blest by the priest to whom the flag often means so much more than the cross. All the inventive genius of modern culture enters into the contest against the "savage," and the eloquence of the forum and the pulpit is eager to excuse and to palliate the wars of "civilization." In every part of the globe the last few years have seen a protest of the "colored" and the weaker races against the white and the strong. In Algeria and in West Africa, in Arabia, in Madagascar, in Sumatra and the Philippines, in Samoa, etc., the story is the same. But the centuries-old struggles of the Achinese, the Formosans, the Filipinos, the Mayas of Yucatan, all tell what a power of resistance these "lower" races have, and how hard the task of conquest really is. The entrance of the Japanese into the list of approved civilized peoples and the failure of the *Culturbund* to parcel out China prove that the "yellow men" are still a mighty force in the world with which the whites will have to reckon after they have "conquered" every tribe of "niggers," whose land or gold they may want. And beside the general assault of the white upon the colored races there is going on a campaign of the stronger among the whites against the weaker, just as deplorable and unrighteous. The tyranny of the Anglo-Saxon is but a more crafty expression of that of the white in general. The

"poor whites" will ultimately fare the worse for this experience with "niggers."

Empires of conquest carry with them into the world at their birth the poison that destroys them sooner or later. There is nothing about the Anglo-Saxon that frees him from the action of this universal law, which applies to every attempt of a people, evolutionarily capable of achieving the same end by peaceful means, to accomplish "civilization" by the unevolutional way of war. War, as Letourneau, who styled his monograph justly "*The History of War among the Races of Mankind*" and not "*The Evolution of War among the Races of Mankind*," since war is not a factor of evolution but an incident of barbaric culture perpetuated in modern civilization, has well said, is always war and its consequences always immoral. War is like alcohol. Its glow is followed by a dangerous refrigeration of the social organism. Like alcohol, war stimulates for the moment, giving a false sense of exhilaration, but, as is the case with alcohol in the system of the individual, this brief and temporary exaltation is followed by a much longer period of depression, which is often of the greatest possible danger. The medicine, indeed, is worse than the disease. The after-effects of war more than cancel its immediate seeming benefits. In the end, war accomplishes nothing of evolutionary value. It often sacrifices the best on the field of battle, and transmogrifies into heroes the least deserving of the race. Most inexcusable and least effectual of all as an influence in human history is war waged against really primitive peoples. War by "civilized" races against the child-like peoples of the world is like war by adults against children. One is as cowardly and as despicable as the other. The retort of the Spaniard, "Why don't you Americans make Russia behave herself?" reminds us of the boy's remark to the adult who sought to rule him by physical force, "Why don't you take somebody your own size?" But as a mere matter of human evolution, the nation that resorts to war loses in the long run. The survival of the fittest must now be achieved by the fittest means. America in the twentieth century A. D., cannot survive by means that failed to keep alive Babylonia in the twentieth century B. C. The old histories, written to the tune of the war-songs of the conquering races, used to tell us that the Slavs exterminated all the primitive peoples of their habitat; the Teutons their fore-runners in Germany; the Saxons the Celts in the larger part of Britain; the children of Israel the Canaanites; the Spaniards the American Indians; the Japanese the Ainu; the Chinese the Miao-tse, etc. But the more careful anthropological investigations of later days and the newer spirit in which historical research has been carried on have amply proved the fallacy

of these contentions. We know now how hard it really is to exterminate a people; we are learning to what extent peoples supposed to be utterly extinct survive to influence in no insignificant way the physical, intellectual, and moral well-being of their conquerors and *soi-disant* exterminators. Indeed we can say that the vanquished in war are (when not so few in numbers as to be actually exterminated), nearly always, if not always, the real victors in the end. The peasantry of Egypt have seen as conquerors of their native land the Libyans, the Hyksos, the Assyrians, the Persians, the Greeks, the Romans, the Byzantines, the Persians (again), the Arabs, the Ottoman Turks, the French, and the English,—and to-day their millions are the problem of the latest rulers as, 10,000 years ago, they were of the first invaders. Theosophy and Neo-Buddhism in certain quarters of America show that the myriad inhabitants of India, are not only not powerless in their own land but have extended their influence to far distant climes. The Dutch have "conquered" Java, yet the Mahometan population of that great island has more than trebled in the last half century. On the other hand, after hundreds of years of Christian effort, from the half-mythic Thomians to the most recent Americans, the converts made in India number scarcely more than 2,000,000.

Poland was extinguished, yet the "Polish question" is as acute in Germany to-day as ever it was. The very name of Virchow, her greatest and most representative man of science, whose recent death she mourns, indicates his Slavonic ancestry, and with many other names illustrious in academic, political, and literary activities, serves but to show that the prehistoric "conquest" of the Slavs by the Teutons was really as ineffectual as the modern subjection of the Poles. The physical victory of the Teutons in times past is avenged by a Slavonic triumph upon the high field of literature and science. Rome "conquered" Etruria, but the greatest school of Italian art in the Middle Ages was the Florentine, and it is the Tuscan, not the Roman dialect that has become the literary language of modern Italy. The defeats of the Vadimonian Lake and Volaterra are more than redeemed by the glory of Cimabue and of Dante.

The Anglo-Saxons "conquered" the Celts, yet, in the new land overseas, which they founded, the Scotch-Irish and other Celtic elements form the most noteworthy single influence in national life, and have furnished the United States at least one-third of her presidents, including the distinguished Jefferson. The Celt, also, may claim the present prime-minister of the United Kingdom. Canada, too, although the French were "conquered" there in 1760, has at this moment a premier of

pure French extraction. This is a pretty good record (to say nothing of its achievements in other walks of life) for an "exterminated" or "conquered" people. The Spaniards "conquered," or "exterminated" the Indians in Central and South America, yet in most of the Spanish-American Republics to-day the numerous and important part of the population, in so far as the future of these countries is to be considered, is the element of Indian ancestry (pure and mixed), which in several of them is already the most active and the most virile, socially and politically. The Indians have furnished to Mexico a Juarez and a Diaz (partly), to Guatemala a Barrios, to Venezuela a Castro, etc., all of whom have sat in the presidential chair of their respective countries, besides many other men of importance in science, literature and art. The ultimate destiny of many of these Republics is evidently to be once more controlled and ruled by the descendants of those whom the Spaniards subjected by force of arms. From Mexico to Chile the American Indians are preparing to become the *beati possidentes* in the very presence of their conquerors. The Amerindizing of the conquering race is in many respects only a question of time. There is a very real question here of America for the Americans, an anthropological Monroe doctrine signed and sealed by nature herself. And only the comparative fewness of the Indian population in North America has perhaps saved the Anglo-Saxons from a like fate. And even here the influence of the Indian upon the life, habits, political and social institutions of the intruding Aryans has been and still is much greater than is commonly believed or suspected. All these facts ought to be before us in the final decision concerning the new departure of imperialism. The people of the Philippines are far too numerous to be exterminated, far too ambitious to be mere colonists, far too intelligent not to be able to take advantage of our mistakes and our acts of gross and petty tyranny. We have "conquered" them by mere physical force; they in the end may have their day of triumph if the strenuous activity of the United States, misused as a "world-power," shall result in the paralysis of its intellectual and its moral genius.

The "Plague of Commerce." Hard indeed is the path of the "lower" races when they have to be ruled by a modern commercial nation. Of all despotisms the tyranny of commerce is the worst and the one which has least sympathy with the ideas and aspirations of primitive peoples. Politics will strangle a Filipino republic at birth, but commerce will leave a new-born Cuba to die of inanition. The commercialized Christianity of not a few of our eloquent pulpiteers to-day demands the Malay stall for the Anglo-Saxon ox. It was ominous for the inhabitants of "our new possessions" when we bought them

for so many dollars from Spain. From the very beginning the trail of the commercial serpent was over all our dealings with an extremely sensitive people. Even now the strong argument for retaining these islands and "civilizing" their natives is that we are contending for the commercial domination of the world and cannot afford to let them go. The destinies of 10,000,000 brown men and women are to be sacrificed to those of 70,000,000 whites at the mere behest of "commerce." The educational side of the sacrifice is the most lamentable of all. As one may see from Letourneau's *Evolution of Commerce*, the actions of buying and selling are with primitive peoples, not nearly so sordid in character as they are with us. There is not at all the same determination to get the best of a bargain. The legal maxim *caveat emptor* is distinctly a product of civilization. To the primitive mind the pleasure in the exchange is more than the profit by it. There is also a personal element in the buying and selling of the "lower" races that is almost entirely, if not altogether, absent in the commercial transactions of civilized peoples. Against the dictum of the Anglo-Saxon that "every man has his price," we can set the belief of the "savage" that "every price has its man,"—for with everything sold goes the man who made it or discovered it. With primitive peoples the seller is not so soon outlawed or so readily forgotten as is the case with us. Buying and selling, too, are with the "lower" races more closely correlated with social, moral and religious ideals than in civilization. With the savage, the rich merchant had needs be good before his death, not after. It were harder for the rich man to enter the earth of some heathen than to enter the heaven of some Christian peoples. To the "savage," to sell all he had and give unto the poor would be a natural thing to do, not an act of folly as we deem it, in spite of the words of Jesus. Nowhere better than in their buying and selling do the genial character and real humanity of many of the "lower" races reveal themselves. Indeed, if it be said that the civilized peoples of the world are seen at their worst in commercial transactions, it may also be said that in buying and selling the uncivilized are often seen at their best. The colloquial sense of the word to "sell" could never have arisen among a really primitive people. Every traveller who has at all won the confidence of any of the "lower" races knows how free they are generally from the besetting sins of a nation of shop-keepers. The distribution of wealth during one's lifetime is well known among primitive peoples and its egoistic centralization permanently more difficult to accomplish than among civilized races,—often quite impossible. The payment of debts is more a matter of personal, family, tribal, and national honor with the former

than with the latter. Often there is no outlawry of the debt after a certain period of years (as with us), the descendants of the debtor and his family being bound to pay it some time or other. This was the view of the Kootenay Indians of British Columbia and other American aborigines, and the trading companies of the eighteenth and nineteenth centuries had fewer bad debts than have the department stores among the whites. In this connection, it is interesting to note that about the first American word to obtain currency in the Philippines was the colloquial "jawbone," *i. e.*, credit, the first civil transaction of some of the soldiers being to run up a bill with the natives. Ignorance of native customs as to buying and selling on the part of the white purchaser often leads to serious misunderstandings. For there are part sales and whole sales, and sales that bind the buyer as well as the seller. In the first onset of the white commercial spirit the "lower races" usually get the worst part of the bargain. The natives, *e. g.*, sell lands supposing that the whites will observe the custom which allows the former proprietor fishing or hunting rights after their disposal, only to find the new owner thinks he has absolute control of the property he has acquired. Or, they will dispose of them believing that the white purchaser will respect the sacred spots, the graves of their ancestors, etc., but discover, too late, that the surveyors are planning a railroad through the primitive cemetery, or that some official has demolished the old shrine to make room for a summer cottage. Again, it may be that the whites in a country where women do have rights will buy from the meaner sort of men without consulting their better halves; or again, flattering the pride and ambition of some petty chief, will deal with him regardless of the people over whom he exercises not the least authority in such matters. Other worse and more consciously deceptive means are employed. No wonder that the best and most fertile sections of land fall into the hands of the newcomers and the natives are forced back on to the least productive, and their power of survival in competition with the whites greatly reduced. This has been notably the case in the islands of the Pacific and with our American Indians. The white man takes the fat of the land and expects the "savage" to thrive on the lean. The area at the disposal of the natives becomes smaller and smaller by the intrusions of the whites till there is not enough of their ancient heritage left to support them and they must needs soon die out altogether. But even where the race is physically healthy and the number of children per family continues large, the greed of the white man is in no sense lessened and the tragedy of extinction continues to be enacted. With many primitive peoples the needs of the family rather than the whims

of the individual control the distribution of land. With not a few of the "lower" races unused property must be loaned on demand to him who can put it to use. Among a maritime people in the fishing and hunting season (this was true of some of the Eskimo communities) if a man possessed three kayaks and could use but two he was bound to lend the third to some less fortunate fellow. When the Maoris sold some of their lands to the English colonists in New Zealand, at so much per head of the native population, they are said to have come to the buyers after the expiration of a year to ask for the per capita for the children born during the interval. Of course, the whites failed to see the point made by the natives that one generation had no power to sign away the rights of the next. Yet with us modern municipalities are sometimes bound in just this manner. The commercial exploitation of the "lower" races by the "higher" is one of the chief crimes of the present age. To commercialize them is as inhuman as it has been for civilization to commercialize childhood. Both the childhood of the race and the childhood of the individual have a right to be free from the poison of money-making. It is a sad commentary upon our morals that the first American cargo landed in Manila, after the battle, consisted of liquor, and that the first notification of the intention of the United States to hold the Archipelago came in the form of a cablegram from an American firm of liquor dealers to their correspondent in the East. This was a poor showing for a nation bent upon "civilizing" another. It was surely unfortunate for both that the saloon and the soldier went hand in hand. Here, again, the "higher" and the "lower" races met not upon the highest but upon the lowest plane. And ever since the trail of the commercial serpent has been over all our dealing with them. In its last analysis our desire to hold these islands does not spring from any deep-rooted faith in their ultimate nationhood, but from our conception of them as a market or as a stepping-stone to the greater markets of the adjoining continent. In all ages it has gone hard with when "trade's unfeeling train usurps the land." All our well-doing afterwards is needed to "redeem the evil time."

"*Das Ewig-Weibliche.*" The curse of all attempts of the so-called "higher" races to improve the "lower" is the absence of the woman element. Hetero-sexual contact means at the highest point marriage, and at the lowest prostitution. The savages get acquainted with the worst of the men of so-called civilization before they know the best of its women. The best the primitive races can evolve falls victim to the worst product of modern culture. The soldier and the bachelor of adventure demand, as of old, the "maiden tribute" that

belies alike the professions of Christianity and the decent instincts of mankind. The Anglo-Saxon is no exception to the rule which the Spaniard, the Roman, the Greek and the Assyrio-Babylonian illustrated before him. Some very primitive peoples, like the Veddas of Ceylon, know neither polygamy nor polyandry, nor yet prostitution. Whatever fall there may be from their original monogamy will have to be credited to their contact with "higher races" and their civilization. The Malays of the interior of Malacca and the great islands of the Archipelago are more moral than those of the coast, who have been more or less ruined by the "culture" of the seaports. The licentiousness of the negroes of the Cameroons, like their "impudence," increases in direct proportion to their contact with the whites. Since the coming of the Spaniards and Americans in the Philippines adultery has come to be much more lightly esteemed by the native population and ideas of divorce seem creeping in to threaten life-long monogamic unions. In many parts of Polynesia, Micronesia and Melanesia the presence of European and American sailors, soldiers and traders has been a social pest. It was the whites who introduced into Samoa the abominable "temporary marriages," which have sapped the morality of so many primitive peoples in the Pacific and elsewhere. Even where licentiousness is known to have existed previous to the coming of the Europeans (*e. g.*, in Tahiti), immorality was formerly less than it is now. The Eskimo of the small outlying settlements where there are no whites are more moral than those of the larger places where they are to be found. Certain Carib tribes knew nothing of adultery till the white intruders instituted it. Primitive America has tales of sexual corruption by the whites that are as pitiful as the worst of those from the Pacific. Algeria, Madagascar, India, etc., add their ineffable quotas to the list. The frequenters of municipal brothels have created national bagnios in far-off lands. The sacrifice of virtue has preceded both the coming of the missionary and the despatch of the teacher. No wonder the natives have fled from the representatives of religion and science white-skinned like their kindred who have corrupted them. The Bible and the school have been forced into an unholy alliance with beer and the brothel. The needs of the abnormal man have been provided for before those of the normal. The worst face of civilization has been presented to the best face of primitive culture. The "higher" and the "lower" races have not met on the most human plane common to both. The least culture-bearing portion of one sex only among the "higher" has been chosen to initiate contact with the lower. This is a case where half begun is wholly undone. To the ethnological maxim that the test of any stage

of culture is the position of its women may be added this other that the proof of its humanity is its capacity for influencing peacefully other cultures by its united manhood and womanhood. If, as has recently been proclaimed in high quarters, a bachelor is, in the midst of his own civilization, a "moral degenerate," how much more so is he as its representative among primitive peoples. Fatherhood and motherhood are more than school and church. The family is more powerful than the army and the navy. Ambiantism is better than conquest by force, and woman is more than half of ambiantism. The New World ought to set the Old a better example than by minimizing woman as a factor in the "new colonization."

The Fetish of "Education." The fetish of "education" thrives on the forced relations of "higher" and "lower" races. When a republic recurs to monarchical methods in its political life it can hardly escape returning to the fetishistic idea in education. A people believing in destiny in matters of statecraft must have an educational panacæa. To "benevolently assimilate" another race, it is necessary to educate them autocratically. To give them the artificial "benefits" of Anglo-Saxon culture, they must be deprived of the natural advantages of their own. We see a whole nation, the individual members of which have so largely emancipated themselves from the thralldom of the idea that there can be no real personal culture without Latin or Greek, flying in the face of evolution, turning the hands of the clock back, and declaring that there can be no real national culture without English. No nationhood without Anglo-Saxondom. The position of the imperialist is even more preposterous than that of the classicist. The latter has the advantage, too, that the mumblers of dead languages must needs be less prejudiced than the political speakers of living ones. That the greatest things of all time have been done by the Anglo-Saxons is no more true than that the wisest things of all time were said by the Greeks. It must be remembered that the Greek called all other peoples "barbarians" and the Anglo-Saxon is a self-constituted judge of "lower" races. Evolution cannot forget, even if man chooses to ignore, what the Greeks borrowed from the "barbarians" and the Anglo-Saxons from the "lower" races. What the Egyptians thought of the Greeks, the Teutons of the Romans, the Japanese of the Anglo-Saxons, the Filipinos of the Americans, are contributions to human knowledge not to be pigeon-holed at the sneer of a philosopher, the anathema of a priest, or the jest of a "statesman." An educational system that has failed to make good Christians cannot be the right substitute for one that has succeeded in making good heathen,—and, what is more, in keeping them good. It is not education in any proper

sense to make another people the *corpus vile* of our discredited experiments. Yet this is the essence of the "education" of imperialism—anything American is better than anything Spanish or anything Filipino. To get an "education" in the Anglo-Saxon "annex" is better than to evolve one independently elsewhere. But these "annexes" are no more satisfactory for subject races than they are for subject women of our own stock. Anglo-Saxons have no more right to dictate the education of other races than men have to dictate the education of the other sex. The one has been a gloomy failure, the other would be immeasurably disastrous. The Anglo-Saxon, who doubts the advisability of putting woman through the mill of the college ought to hesitate before putting the Malay through the mill of a made-to-order school system. A good woman is better than an encyclopædic hermaphrodite. An honest dunce (the scholars being judges) is less a reproach to society than a scientific villain. An upright heathen is to be preferred above a hypocritical Christian. What the world wants is more men and women, not more machine-made Americans. The "education" of the imperialists is a pretty cheap business. Doing up education as if it were a prize package of chewing-gum belongs to the humbug side of Americanism. And there is the best reason for believing that the lower races do not like to be humbugged half as well as Barnum said we Americans do. When we believe that not every Anglo-Saxon youth is intended for an A.B., we ought not to proclaim from the housetops that every Indian, every negro, and every Filipino ought to be a farmer. Compulsory manual-training and pitch-fork English will have the same deadening effect upon the *naïve* and artistic Malay that they have had upon so many Anglo-Saxon school children, their genial kinsmen. To provide a government, a school system, and a religion for another people, and to lime them all with commerce is a three-fold crime, which will not only not "elevate" the heathen, but will degrade us. The nickel-in-the-slot machine ought to have no place in the higher education of man. Put a "nigger" in the slot and take out an American, cannot represent our noblest ideal. And beside the machine stands the soldier on guard for fear some clever Malay might "get on to it" and run off with the whole stock. The core of the real imperialist education is not to let the pupil be free to act according to his knowledge. The net result of our folly in the Philippines will be for us to assume the rôle of Jupiter while the Malay is doomed to that of Tantalus. And in such circumstances education is a delusion and a snare. Education, no more than a nation, can exist half slave and half free,—its motto, too, is liberty, or death. To educate the Filipinos, without using to the full their language and their

literature, the thousand-fold stimuli of their environment, their racial temperament and ideals, their past history and natural ambitions for the future, is to stunt them in body, mind and soul. We have let loose upon them the soldier, the trader, the school teacher, and the missionary,—and we talk about education! The brain-cure we are treating them to at the hands of our teachers is worse than the "water-cure" our soldiers gave them. In education, as in everything else connected with the "new colonialism," we began wrong. We can change, if we will, for it is not altogether too late yet. But it must be a complete change and an honest admission of error. To educate the Filipinos as Filipinos, and not as Americans is the right ideal. Let 10,000,000 Malays as such develop along the lines of their native genius and some day the world will rejoice that they have been. Educate them through themselves and they will become strong, as their kinsmen the Japanese have done, adding a new star to the constellation of civilized races. Who doubts but that the self-education of Japan was better for her than any colonial "annex" of Anglo-Saxondom? Is it not well that she has always been free? Freedom is the natural substrate for education. If freedom fail, education is but dust and ashes. Our nation is just achieving the freedom of the child in the matter of school-life, shall it condemn to educational serfdom the most child-like people the world knows? All that is high and holy we lavish upon our children,—all this and more we ought to give the Malay. It has been well said the child has a right to be a child as long as childhood lasts. It is equally true that the Malay has a right to be a Malay as long as Malayhood lasts. For one as for the other a wrong education is worse than none at all. Self-evolution is more than the best *protégéism*. A Malay by evolution means something higher than an American by the nickel-in-the-slot process. Human beings made by nature, not those unmade by man, give the world the variety by which it lives.

The Higher Optimism. Easy is it for the soldier to shout "My country! Right or wrong!" Easier still for the politician to declare his belief that the destinies of a weaker people are safe in the hands of his own. The one tries to depict the "hell of war" as a necessity, the other to excuse incompetent administration as "inevitable under the circumstances of the case." And both soldier and politician assume the attitude of the patriot and decry as pessimism or as treason all discussion and denunciation of their notorious savagery and corruption. They forget that higher than the "optimism" stimulated by the rapid "progress" (not always evolutionary) of a great and mighty people, is the optimism born of faith in the essential

unity of man and the right of races, as well as individuals, to be themselves as best they may. They do not remember that more atrocious than treason to any one land is treason to all mankind. A theory of optimism which is all "white" is human in no best sense. Just as Christianity was remolded in the Occident, and may have to be retouched by the Orient before it can become the religion of the world, so the Anglo-Saxon theory of optimism must go farther or it will fare worse. In spite of our self-satisfaction, the teeming millions of Russia, India, China and Japan are to have some say in the shape it will finally take. The yellow peace, rather than the "yellow terror" is destined profoundly to influence the world. The optimism of peace is infinitely higher and nobler than that of war. Better is it to do much good that a little good may come than to do some evil that more good may come. The natural optimism of the heart is more than the artificial optimism of the sword. The world-old heart, not the twentieth century head, should guide us in our dealings with primitive peoples and the so-called "lower races." Else the millions who live by the native heart will die of the foreign intellect. The higher optimism can have no fellowship with the lower education. The eternal good will triumph over the short-lived expedient.

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LITERATURE.

Des Johann Amos Comenius Entwurf der nach dem göttlichen Lichte umgestalteten Naturkunde, dem Urtheile der Unterrichts-freunde und der Gotteslehrer vorgelegt. Heransgegeben, uebersetzt und erläutert von JOSEPH REBER. Emil Roth, Giessen, sen, 1896. pp. lxxxiv+552.

Those who live and work in an age of realism, science, and nature study, owe a great debt to those who ushered in the revival of interest in things. Vives, Campanella, and Bacon all struggled against the headlong debates about what Aristotle said of things. Comenius, however, was the first great realist, who consistently carried his theoretical ideas over into schemes of educational values. Science and pedagogy here first locked arms and kept steady step. Text-books and methods were reconstructed by this pious pedagogue, most of whose works are familiar to every one.

This work on *Physics*, finished in 1632 and published the following year, and passing through several editions during the author's life, is too often overlooked. It is an attempt to bring the explanations of physical science into harmony with the conceptions of nature expressed in the Biblical writings, a not uncommon attitude of mind in the age of its appearance. So much for the author's piety. The work also takes its place in his pansophistic schemes, which grew into an almost mystical elaboration as his life approached its close. But most of all, he here applies his combined method of wisdom, namely that a true knowledge of things, of nature, of that which is created, is derived from sense-perception, reason, and the Holy Scriptures. In describing his realistic impulses and inveighing against the Aristotle cult of his times, he says in the preface: "Do we not dwell in the garden of Nature as well as the ancients? Why should we not use our eyes, ears, and noses as well as they? And why should we need other teachers than these our senses to learn to know the works of nature? Why, say I, should we not, instead of these dead books, lay open the living book of Nature, in which there is more to contemplate than any one person can ever relate, and the contemplation of which brings much more of pleasure, as well as of profit? (Laurie.) The pedagogical merit of this work lies not so much in the actual theories of nature he propounded,—although these have their special values in the history of science, of theology, medicine, and culture,—as in the recognition of this great field of human experience, and the partially successful application of method in getting acquainted with natural facts and interpreting them. This in truth is the scientific spirit in education: a judicious combination of *the how* with *the what*.

To Comenius, physics is the science of natural things. The law of nature is becoming and change, action and rest. To investigate nature means to consider how and why everything in nature has arisen. The creation account in *Genesis* is elaborated at length. The three cosmic principles of 'visible' substances are matter, spirit, and light. The movements of these are sketched in detail. The essential qualities of things are sulphur, salt, and mercury, with which are correlated fire, spirit, and matter. The former three are not the common

'earths' known by these names, but something known in idea only; from them are derived the ordinary physical properties of fluidity, hardness, etc. The sensible properties, such as tastes, smells, sounds, colors, are generated from the varying relations and combinations of the three essential elements.

The changes of things, generation and corruption, are treated in connection with the four particular elements: ether, air, water, earth. Water is thickened air. Interpenetrating vapors are employed to explain the various structures given in the earth, as minerals, oils, etc. Winds, tides, earthquakes, stars, meteors, comets, minerals, rain, hail, snow, ice, plants and their parts, animals and their functions, man and the angels are the facts and phenomena taken up successively.

An animal is a moving plant endowed with sense-perception; the moving principle is the soul; nourishment and assimilation. Life is that mixture of the spirits with the blood and organs which produces warmth, sensibility, and movement. The animal and human faculties of sensation and the end-organs of touch, taste, smell, audition, vision; of movement, and expression—the voice, the head and brain, not the heart, are the important factors in animal structure.

Man is a rational animal endowed with an immortal soul. The mind arises immediately from God, and has the three faculties of intellect, will, and consciousness; attention, imagination, and memory are also treated. Angels are considered in this work on physics, *because* they are created as a part of the world, and as standing next to man, from whose nature that of the angel may be easily developed.

The diseases of the mind receive a section. They are simply the vices which produce either unrest or pain, such as the inordinate desires to eat and drink, to increase, to possess; or, the emotions, as sadness, anger, satiety of life. Remedies are to be found in ethics. The soul has diseases: as forgetting God, troubled conscience; numerous addenda to the later editions follow.

This volume, compendiously and exhaustively edited, is another representative of the patience and thoroughness of German scholarship when it attacks an historical or literary piece of work. The translation from Latin to the German—the edition being arranged with parallel texts—seems to be faithfully accomplished. The voluminous notes and introduction increase the great value of the book for all students of Comenius. Besides the *Physics*, the volume contains two short essays: "Investigations on the Nature of Heat and Cold," and "Descartes's Philosophy of Nature Overthrown by the Physicists."

E. F. BUCHNER.

De la formation des maîtres de l'enseignement secondaire à l'étranger et en France. Par MARIE DUGARD. Paris, Armand Colin, 1902. pp. 242.

Few writers are so well equipped to discuss the training of secondary teachers as Professor Dugard. She has travelled extensively in the United States and the countries of Europe, and her language equipment includes three of the great languages of to-day—French, English and German. She was the woman representative of the department of public instruction of France to the Chicago exposition in 1893; and her book on American society was crowned—and justly so—by the French Academy.

In a preliminary chapter, Miss Dugard states the problem of the training of secondary teachers, and gives a succinct historic orientation of the question. With the organization of secondary education in the middle ages, as she shows, the need of trained secondary teachers became apparent, although little was really done to meet the need.

Four chapters are devoted to the training of secondary teachers in foreign countries. In Prussia, Sweden, Finland, Austria, Hungary, and Russia the state reserves the exclusive right to train secondary teachers; and in some instances specific institutions are provided for this purpose. In Japan such teachers may prepare in private institutions. In Norway, they may pursue courses at the university of Christiania, Copenhagen, Paris or one of the German universities. In Great Britain, Canada, and the United States, the national governments do not control secondary education, and the training of secondary teachers is left to local authorities.

Miss Dugard notes the important place held by the universities in Germany and the United States in shaping the preparation of secondary teachers. More than half the colleges and universities in our country, she observes, have chairs of pedagogy. The universities of Scotland and Wales—and to an extent those of England—provide courses in pedagogy for secondary teachers.

Two chapters (and ten appendices) are given to the training of secondary teachers in France. The French policy is much more definite and consistent than that of the United States or Germany. But does it produce better results? The higher normal schools are model institutions; but they train, after all, very few secondary teachers; whereas, chairs of pedagogy, not only in Paris but in all the provincial universities, would bring the teaching science and art and spirit to many more prospective teachers.

The spirit of Miss Dugard's book is broad and the tone is judicial. She is entirely at home with her problem and her discussion of the same is certain to interest many teachers in American high schools and colleges.

WILL S. MONROE.

International reports of schools for the deaf. By JOHN HITZ. Washington, Volta Bureau. 1902. pp. 56.

Astonishing advance has been made in the education of deaf children during the past one hundred and fifty years. Two names are especially prominent in this reform movement—Samuel Heinicke in Germany and Alexander Graham Bell in the United States. The former organized the movement and the latter has given it most direct tendencies in our own country and time. In 1895 the Volta Bureau made an initial attempt at securing uniform information concerning the progress of deaf schools in the different countries of the world. The present document may be considered a second international report.

The report includes data from 645 schools with the following continental location: Africa, 13; Asia, 18; Australia, 22; Europe, 450; North America, 135; and South America, 7. These schools have a teaching force of 4,734 and an enrollment of 38,722 children, of whom 5,963 have some hearing power and 14,034 are congenitally deaf. The United States, with 126 schools, has more institutions for the deaf than any other country. Germany, with 99 schools, ranks second; Great Britain, with 95 schools, third; and France, with 71 schools, fourth.

The State of Wisconsin in our country and the city of London in England lead in the number of day schools for deaf children. The most significant item in the report is the marked growth and widespread use of the so-called oral method of teaching—that is, articulation and lip or speech reading. But four out of 126 schools in the United States report the exclusive use of the manual or sign method of communication. Fifty-one schools report the use of the pure oral method, and the balance a combination of the manual and oral methods. There is marked decrease both in the use of the manual and the

combined methods and corresponding gain in the use of oral methods. Practically all the deaf schools in Germany, France, and Italy train their pupils to articulate and to read lips. Although composed mainly of statistics, the report is full of items of interest to the student of education.

WILL S. MONROE.

The care of destitute, neglected, and delinquent children. By HOMER FOLKS. New York, The Macmillan Co., 1902. pp. 251.

Mr. Homer Folks, because of his long connection with the public charities of Pennsylvania and New York and more recently as commissioner of public charities of the city of New York, is able to speak with authority concerning abandoned, neglected, and dependent children; and with such unfortunate youths the present volume deals—a single chapter being given to juvenile delinquency. The scope of the book may be indicated by the chapter headings: 1. Conditions prevalent at the opening of the nineteenth century; 2. Public care of destitute children, 1801-1875; 3. Private charities for destitute children, 1801-1875; 4. Removal of children from almshouses; 5. The State control and placing-out system; 6. The county children's home system; 7. The system of public support in private institutions; 8. The boarding out and placing-out system; 9. Laws and societies for the rescue of neglected children; 10. Private charities for destitute and neglected children, 1875-1900; 11. Delinquent children; 12. Present tendencies.

Four systems are in operation in the United States for the care of neglected and dependent children: (1) The State school and placing-out system, in Michigan, Minnesota, Wisconsin, Rhode Island, Kansas, Colorado, Nebraska, Montana, Nevada, and Texas. (2) The county children's home system, in Ohio, Indiana, and Connecticut. (3) Support of children in public and private institutions, in New York, California, Maryland, and the District of Columbia. (4) Boarding-out and placing-out system in Massachusetts, Pennsylvania, and New Jersey.

The first, or "Michigan plan," with slight modifications, Mr. Folks considers one of the best. The second, or county-home system, he considers bad. "It has been fairly and fully tried," he says, "and has been found wanting." The third system—support of children in public and private institutions has—as Mr. Folks recognizes—most pronounced evils. It encourages parents to throw their children upon the public for support; it brings into existence an untold number of sectarian institutions whose chief aim is to keep the children in a dependent condition; and it makes classification of degrees of dependency impossible. Mr. Folks expresses the hope that the obstacles of the subsidy or contract system may be overcome after fuller and fairer trial. But with the experience of New York and California with their ridiculously large percentage of state supported children and the absurdly high rate of maintenance, even the optimism of Mr. Folks fails to carry conviction.

The boarding-out and placing-out system followed, in this State, seems to the reviewer the sanest and most economical of the four systems outlined. The Michigan plan may have advantages; but it unquestionably has an institutionalizing tendency which is never wholesome for the dependent child. Mr. Folks's book is filled with recent data; the style is clear and lucid; and the author's suggestions are, for the most part, in line with the most recent and best social reform.

WILL S. MONROE.

The English Chronicle Play, by FELIX E. SCHELLING, PH. D., Professor of English Literature in the University of Pennsylvania. The Macmillan Company.

This book is, as the preface states, "an attempt to tell the history of one of the many and various strands which, twisted and interwoven, form the brilliant and heterogeneous Elizabethan drama. Shakespeare as a writer of historical plays is, of course, the central point. This class of play is traced back to its threefold origin: the old sacred drama, the pageants of the middle ages, and the early English ballads. Its fortunes in the hands of Shakespeare's immediate predecessors are clearly pictured, as is the relation of its growth and development from the first vague, wavering love of country to the great outburst of patriotism in Shakespeare's youth. We see the crude treatment of the play by the pens of the early dramatists of the sixteenth century, its elevation under Marlowe, although it still retained the faults of "inconsequence and sketchiness," its apotheosis with the Shakespearian transmutation into "sheer poetry," its degeneration under a Scottish king who cared naught for the land over which he ruled, and finally its practical disappearance at about the middle of the seventeenth century.

The value of the book to the student of dramatic literature is increased by an appended list of plays founded upon English historical subjects, wherein by a skillful arrangement of italics and abbreviations a great amount of information is conveyed in a few pages. But this is not entirely a book for the student. Bits of æsthetic criticism add to its interest for the general reader, and here the author shows the acumen of the critic and appreciation of the artist. Dr. Schelling has a special gift in the use of pairs of adjectives so unlike as to give an almost stereoscopic view of his subject. Such phrases as "the staunch and boisterous Puritan spirit," "the saintlike and impotent king," "the politic and unimaginative Bolingbroke," are of the stamp that linger in the memory.

This volume of some three hundred pages impresses the reader as being the result of scholarly investigation and loving study. Many a sentence is dropped lightly into the text which is the summary of a vast amount of thoughtful reading and critical comparison. The conclusions reached by Dr. Schelling are stated with no hesitancy, indeed, but with the conscientious regard for accuracy and moderation that mark his previous volumes. At the first glance the man who loves the blow "straight from the shoulder," may mistake this treatment of the subject for timidity, but whatever may appear lack of boldness is less feebleness of stroke than a carefulness that the stroke may fall in its proper place.

EVA MARCH TAPPAN.

Department of Public Instruction for the Philippine Islands. Suggestive Course of Study, 1902. Office of General Superintendent, Manila, P. I. pp. 28.

Few publications will be more interesting to thoughtful educators than this course of study. Most of the American teachers who went to the Philippines had to begin almost at the very beginning. Buildings were inadequate or lacking; there was little apparatus; most of them knew not a word of the native language or even of Spanish, and they confronted the great new problem of training the children of an alien and often unfriendly people hampered by distance and sometimes no doubt by military operations and occupations. That they have done hard and faithful work under adverse circumstances can be premised, and that Dr. Atkinson with his great sagacity, learning and experience would leave no effort untried to do the best that was prac-

ticable, all who knew him were assured at the outset, and will trust that the policy he has devised and put in operation will not have been such as will require radical reconstruction by his successors.

We confess, however, in studying his suggestive course that there are many things we should like to hear discussed, and perhaps, first of all, the propriety of requiring English of all and always from the very start. The sentiment in this country would overwhelmingly sanction this course, but those who believe in indigenous development are already persistently asking whether it might not have been better to have sought ways at the outset of developing first in the lower grades, better knowledge of their own language in written form, especially among the Tagalogs. There are an increasing number who hold that the best way to make good Americans is first of all to make good Filipinos; to teach them respect for their own traditions, customs and language, and to require English only in the later grades when it was demanded.

Again, we do not find in this course any answer to the question so often asked: what attitude teachers are to take with regard to the Spanish language already so widely taught and spoken. To utilize all that is good that has been done by Spain should have been one of the chief and great problems. The prominence given to music is interesting. The other two problems that must arise are, whether yet more attention should not be given to the study of nature, which is by no means already unprovided for, and much more to industry. Now that the world is turning as with one accord with a new and fresh interest to all problems connected with agricultural training, it would seem as though here was an admirable opportunity to make this central, developing also other manual arts and effecting a new subordination of language to motor training. No doubt this course was wrought out under very grave political limitations and not unaffected by the presence of the army. But we cannot but regret the prominence, that under the circumstances seems to us excessive, given to rhetoricals, American history and geography, with sometimes the very text-books used here, the English language and readers, and wondering how the hero worship of McKinley and Rizal would work together and how Lyman's Music Course, the Heart of Oak Readers, Guyot's and Carpenter's Geographical Readers, will work when applied to the little Filipinos.

The Boy Puzzle. A Picture Book for Mothers, by JOSEPH F FLINT. Pacific Press Publishing Co., New York. pp. 217.

This is a direct result of work with and for boys, to 300 of whom in an industrial school the author preached for eight years. A few of the chapter heads suggest the character of the book: contrasted homes, a bundle of possibilities, leading strings, young Hotspur, a hint from architecture, Paradise lost and regained, a young mother's prayer, the Bible and the home. In a series of illustrations of a symbolic character, the author prints pictures of children's heads and faces containing cuts illustrating their propensities, a little after the style of some phrenology works. The book is of no scientific value whatever, but is a very good book.

Studies in Education, edited by Earl Barnes. Oct. 1, 1902. Vol. II, No. 8. Philadelphia.

This number contains articles on children's attitude toward theology, children's sense of truth, children's drawings, children's stories and poetry, and a type study on ideals.

Die deutschen Universitäten und das Universitätsstudium, von FRIEDRICH PAULSEN. A. Asher and Co., Berlin, 1902. pp. 575.

This work is dedicated to the student youth of Germany and begins with the German universities of the Middle Ages and traces them through the Renaissance. The second book describes their present constitution; the third book, the university teachers and instruction; and the fourth, students and academic study; while the last book characterizes the four faculties.

Studies in Education. Edited by Earl Barnes. Philadelphia. November 1, 1902. Vol. II, No. 9.

This issue contains papers on children's ideas of war, their travel interest, further drawings, stories, poetry and humor, and ideals.

The Paidologist. Vol. IV, No. 3. November, 1902.

This is an unusually interesting number with an address by James Chrichton-Browne; an interesting paper by Miss Louch on Some Common Objections to Child Study; another on its Relation to the Home by C. W. Kimmins; Records from a Parent's Notebook; Thoughts on Imitation; Disobedience; Stories; and the usual very interesting and valuable book notices.

Talks to Students on the Art of Study, by FRANK CRAMER. The Hoffman-Edwards Co., San Francisco, 1902. pp. 309.

Habit, interest, attention, observation, discrimination, association, classification, memory, reason, impulse, will and feelings are discussed in a concise, general way.

British Child Study Association. Proceedings of the Hampton Wick Conference, June 24th, 1902. President, Sir James Chrichton-Browne. pp. 57.

This is a very tasteful and indeed elegant volume on heavy tinted paper, containing officers, aims and rules of the association and the proceedings of the conference on June 24, 1902. It is apparently due to the energy of Miss Kate Stevens, Secretary of the London Branch, one of seven already established.

Interest and Education. The Doctrine of Interest and Its Concrete Application, by CHARLES DEGARMO. The Macmillan Co., New York, 1902. pp. 230.

It is high time this subject was discussed, and we opened this book with great expectation. Its early chapters are interesting and valuable, but to our thinking much of the latter part is almost trivial. As a whole, if the book were greatly condensed and with large eliminations made, its value would be greatly increased.

Manhood-Making, by ALEXANDER LEWIS. The Pilgrim Press, Boston, 1902. pp. 215.

The author sent to fifty successful business and professional men questions concerning the rigor or freedom of their home government in childhood, whether they received early training in morals, religious influences, favorite books, guiding principles, motives for choice of calling and how their start came; and upon the suggestions which came to him from forty-two answers wrote ten addresses or sermons, which abound in good counsel to young men.

Autobiography of a Journalist, by WILLIAM JAMES STILLMAN. Houghton, Mifflin & Co., Boston, 1901. Vol. I, pp. 374.

These volumes have a special interest for educators because they give with great fullness the early life and education of this unique personality.

Japanese Woman's College. Illustrated.

Mr. Naruse, who spent some years in this country, in preparation, one of them being at Clark University, has after many years succeeded in realizing the ideal of his life and founding the first government woman's college in Japan. The buildings are light, but extensive, and the class, both of college and preparatory students, numbers several hundred. There are admirable botanic gardens, a dormitory, a laboratory, special college building, director's house, dean's house, gymnasium, a special building for cooking classes, a bath-house, and ample grounds.

Sloyd, by GUSTAF LARSSON. Boston, Mass., 1902. pp. 75.

Principal Larsson is without doubt the best equipped, the broadest minded, and most thoughtful representative of Sloyd in this country. No one perhaps in any land has done more to reform, advance, and commend this system to the public. He has done well to collect and print at the request of friends nine of his recent papers which, without attempting to be systematically connected, do present an admirable view of the entire field. This is illustrated by several charts and cuts presenting an outline of the author's courses in detail. The papers give a reasoned account of Sloyd of various grades as a means of education, as an answer to objections, etc.

Classification for Physical Training, by J. H. MCCURDY. J. T. Bowne, Springfield, Mass., 1902. pp. 19. Price, 50 cts.

This scheme is the outgrowth of more than ten years of experience with one of the largest collections of works on physical training. It is intended for the use of specialists engaged in the study and practice of this subject. There are more than two hundred and fifty subclasses in the library of Springfield, of which the author is custodian, under which will be found everything bearing upon the topic.

Constructive and Preventive Philanthropy, by JOSEPH LEE. MacMillan & Co., New York, 1902. pp. 242.

This work treats of savings and loans, the home, health and building laws, model tenements, vacation schools, playgrounds, baths, gymnasias, outings, boys' clubs, and industrial training. The author is well called by Mr. Riis, "a common sense champion of the boy." The latter half of the book, especially, is the best general treatment of one of the newer phases of education that can now be found.

Some Ethical Phases of the Labor Question, by CARROLL D. WRIGHT, Ph. D., LL. D. American Unitarian Association, Boston, 1902. pp. 207.

Probably no man in this country has made wider investigations into industrial problems and labor conditions than our United States Commissioner of Labor, now also President of the Collegiate Department, Clark University, and no one is more capable of expressing sound and final judgments on matters pertaining to capital and labor. The great strike has given added emphasis to his plea for a wider recognition of the science of political economy of the human, personal element involved in the laboring class.

University of the United States. Senate Document, Report No. 945. Washington, 1902. pp. 192.

This document was submitted in April, 1902, by Mr. Deboe. It reviews the action for a national university since 1869 with a description of the hearings, the report of the Committee of Fifteen, the work of Mr. Hoyt and others which are submitted in extract or in whole,

and ends with 300 letters supplementary to 400 published in the Kyle Report.

Syllabus of Lectures on the History of Education with Selected Bibliographies, by ELLWOOD P. CUBBERLEY. MacMillan & Co., New York, 1902. pp. 302. Price, \$2.50.

One-quarter of this volume is devoted to bibliography. It contains 44 illustrations of schools from the Greek time to the present. It attempts to organize "a subject in which there is as yet no satisfactory text book," and is addressed to librarians as well as teachers and students. It is not a treatise, but a very comprehensive syllabus with most of the pages looking like an index. Its references and headings are sure to be serviceable, but the student could make little use of it save as a guide.

Handbooks of American Government. The Government of New York. Its History and Administration, by WILLIAM C. MOREY. The Macmillan Co., New York, 1902. pp. 294.

This is one of the most interesting handbooks in its series, as it should be, dealing with a great State. It well represents the growing appreciation of a knowledge of civil government, a department which is rapidly coming into use in our schools. First, the growth of the government is described and then its structure and work, while the appendix contains chronological tables, excerpts from select documents, synoptics, reviews and statistical tables.

The Ancient History for Beginners, by GEORGE W. BOTSFORD. The Macmillan Co., New York, 1902. pp. 494. Price, \$1.50.

This book is written in conformity to the recommendation of the Committee of Seven, who advises a year given to ancient history with special reference to Greece and Rome, but with an introductory study to the more ancient nations. As it is intended for beginners, the story is simply told; proper names are syllabified and accented; and the larger topics are printed in bold type.

From the Old World to the New. How America was Found and Settled, by MARGUERITE S. DICKSON. The Macmillan Co., New York, 1902. pp. 197. Price, 50 cts.

This book aims to place before young grammar school children a simple, connected account of the discovery and settlement of America. It is written with the conviction that the day of biographical history is passing and that of the book of disconnected history stories is already passed. Sequence and causation are kept primarily in view.

How Our Grandfathers Lived. Source Readers in American History. III Selected. Annotated by Albert Bushnell Hart with the collaboration of Annie Bliss Chapman. MacMillan & Co., New York, 1902. p. 371. Price, 60 cts.

This book is in seven parts treating the town, country, travellers out west, the Indians, at sea, the army and at school. It has quaint and curious illustrations of points in the stories and is interesting reading for adults.

The Cambridge Modern History. Planned by the late Lord Acton, LL. D. Vol. I. The Renaissance. MacMillan & Co., New York, 1902. pp. 807.

This first volume is in itself a great work of nineteen chapters each by an eminent author. The chapter heads are as follows: The Age of Discovery; The New World; the Ottoman Conquest; Italy and Her Invaders; Florence; Savonarola and Machiavelli; Rome and the

Temporal Power; Venice; Germany and the Empire; Hungary and the Slavonic Kings; France; The Netherlands; The Early Tudors; Economic Change; The Classical Renaissance (by Jebb); The Christian Renaissance; Catholic Europe; The Eve of the Reformation.

Source Readers in American History. The Macmillan Co., New York, 1902. No. 1. Colonial Children; No. 2. Camps and Firesides of the Revolution; selected and annotated by Albert Bushnell Hart. pp. 233 and 309.

These two volumes are written with the conviction that the freshest and most direct writings are those that most appeal to children. It is intended to make children's ancestors interesting to them. The illustrations are copious and antique; the language is modernized; spelling is brought down to recent standards; and altogether the books represent a brilliant and interesting new idea.

School Administration in Municipal Government, by FRANK ROLLINS. Columbia University Contributions to Philosophy, Psychology and Education, Vol. II, No. 1. The Macmillan Co., New York, June, 1902. pp. 106. Price, 75 cts.

The chapters here deal with the interest of the State in school administration, school boards, external business, supervision, administration of instruction and discipline, and relations of the school to the community, with a final summary chapter.

Stories of California, by ELLA M. SEXTON. The Macmillan Co., New York, 1902. pp. 211.

The early condition and subsequent development of California is here the theme, and the romantic events in the wonderful history of this State are well told. Some of the stories explain the remarkable physical features. Interesting are those of the missions, the argonauts, mining stories, wheat fields, and big trees. There are about 40 photographic illustrations.

The Government of Maine: Its History and Administration, by WILLIAM MACDONALD. The Macmillan Co., New York, 1902. pp. 263.

This appears to be an admirable hand-book on this subject, with plenty of references, statistics, a chronological table, charters, articles of separation, the constitution of Maine, and an account of each of the departments of government.

Eskimo Stories, by MARY E. E. SMITH. Illustrations by Howard Brown. Rand, McNally & Co., Chicago. pp. 189.

This little reader for small children is well illustrated and presents interesting phases of northern life; describes Eskimos, whale, reindeer, walrus, dog, seals, white bear, etc., with various stories; the design being to enlarge the child's acquaintance with the world.

Select Translations from Old English Poetry. Edited by Albert S. Cook and Chauncey B. Tinker. Ginn and Co., Boston, 1902. pp. 195.

This book comprises the following classes of literature: epic and historical pieces, secular lyrics, biblical poems, saints' legends, religious mythology, charms, and finally comes a bibliography with four appendixes. The form of the book and the type leave nothing to be desired.

Macmillan's Pocket American and English Classics. New York, 1902. Price, 25 cts. Shakespeare's *As You Like It*. Edited by Charles R. Gaston. pp. 195. Early American Orations 1760-1824. Edited by Louie R. Heller. pp. 199. Geoffrey Chaucer's *The Prologue to the Book of the Tales of Canterbury*. *The Knight's Tale*. *The Nun's Priest's Tale*. Edited by Andrew Ingraham. pp. 337.

These tasteful and inexpensive little books are clear in text and contain abundant and copious illustrative material, notes, glossaries, and dictionaries of proper names, and all are well indexed.

The Teaching of English in the Elementary and the Secondary School. by PERCIVAL CHUBB. The Macmillan Co., New York, 1902. pp. 411.

The author's ideas certainly mark a step in advance in this field. The writer seems to have broken loose from most of the worst methods now generally in vogue, and the book may, therefore, be commended to all teachers of the subject, although we confess on the other hand that we should be glad to see a more radical treatment of most of the topics. Perhaps this book will do more good in the present condition of things, as it is certainly full of suggestions pointing toward mitigation of the very grave evils in this field. The author still holds to books or essays about books; does not feel strong enough to defy the consensus of present standard requirements; and, we believe, attempts to do too much and also does not sufficiently subordinate form to substance, but we should be very thankful in this case for the good we have, and the book can be on the whole warmly commended.

Essentials of English Composition, by HORACE S. and MARTHA TARBELL. Ginn and Co., Boston, 1902. pp. 281.

This work treats of letter writing, description, narration, reproductions, and essays; gives a special study of Longfellow; treats at great length of style and punctuation, with chapters on secretarial writings and choice of words.

The Right Reading for Children in the School, the Home and the Library, by CHARLES WELSH. D. C. Heath & Co., Boston, 1902. pp. 82.

After a list of authorities, the chapters discuss right reading for children in the school, the home and the library, with a graded list.

Elements of the Theory of the Newtonian Potential Function, by B. O. PEIRCE. Ginn and Co., Boston, 1902. pp. 490.

This third edition is by a masterly teacher, who has produced here a standard work that has been constantly revised and kept up to date.

Das deutsche Handwerk in seiner kulturgeschichtlichen Entwicklung, von EDUARD OTTO. B. G. Teubner, Leipzig, 1900. pp. 154.

This book describes the handwork of early German times, the Middle Ages, the beginnings of city life, the origin of the Guilds, the golden period of German handiwork, and the decay of Guilds.

Aus guter Familie, von GABRIELE REUTER. G. Fischer, Berlin, 1902. pp. 380.

This German volume is not without interest to psychology and pedagogy. In it the author has attempted to describe the typical features in the inner life of a German girl beginning at puberty with her confirmation; describing her emotions and inner states of mind with very great fidelity; characterizing the way she reacts to various first impressions of sex without and within; her religious exaltations; her

juvenile and later loves and how they all abort, so that she is left slightly clouded and demented at the age of forty. The criticism, which most Americans would make upon this book, is that it is too much pervaded throughout with the German idea that the chief end in life for a woman is marriage. The characterizations of the gradual changes of her vain affections from one man to another of a totally different type, from young to old, from artist to social reformer, are portrayed with a detail that seems hardly less than confessional.

Studies in Education, edited by EARL BARNES. Vol. II, No. 7. Philadelphia, 1902.

The following articles are included in this number: Children's attitude toward future occupation; school girls' ideas of women's occupations; studies on children's drawings; children's stories and poetry; type study on ideals.

The Laurel Readers. A Primer, by W. N. HAILMANN. C. C. Birchard and Co., Boston, 1902. pp. 112.

We have here something unique in the combination of words, pictures, colored letters, etc., the result of long study by an expert. It combines more new features than any book in its field in recent years.

Little Masterpieces of Science, edited by George Iles. Doubleday, Page and Co., New York, 1902.

These little volumes on mind, explorers, the naturalist, skies and earth, health and healing, invention and discovery, constitute a very attractive pocket library. Some of them are illustrated, and the selections of the editor in general are as excellent as that of the topics of each volume itself.

Introductory Course of Nature Study, by PATRICK GEDDES. University Press, Cambridge, pp. 8.

This leaflet is an epitome of six lectures with afternoon excursions. Those who read it will only regret that it is not fuller and more detailed.

Die Geheimen Krankheiten in ihrer Bedeutung für die Gesundheit, by PAUL ZWEIFEL. Leipzig, 1902. pp. 15.

This lecture is an attempt to impress upon young men more honor and a higher morale in sexual matters from a medical point of view, and is a sane and wholesome plea for chastity.

The Modern Arithmetic. Primary and Elementary Grades. By ARCHIBALD MURRAY. Woodward and Tiernan Printing Co., St. Louis, 1902. pp. 308.

This is the first of a two book series of arithmetics and is largely based on observations made in the class, with careful consideration of the literature, especially Dewey's. Everything is extremely simple and a few of the cuts are colored.

Stories in Stone from the Roman Forum, by ISABEL LOVELL. The Macmillan Co., New York, 1902. pp. 258.

Some of the topics here treated are the Forum, Temple of Saturn, Temples of Vesta, Castor and Pollux, Cæsar's Basilica and Temple, and the Roman streets. There are fifteen well chosen photographic illustrations, and the general style of the book is attractive.

The Poems of Ovid. Selections. Edited by Charles W. Bain. The Macmillan Co., New York, 1902. pp. 461.

This volume contains 173 pages of text, 108 pages of notes, and a vocabulary of over 150 pages, and is attractive in form.

Jean Macé et l'Instruction Obligatoire, par GABRIEL COMPAYRÉ. P. Delaplane, Paris. pp. 104.

Graded Arithmetics, Seventh Book, Arithmetic, Geometry and Algebra. by WM. E. CHANCELLOR, M. A. Globe School Book Co., New York, 1902. pp. 176.

A First Manual of Composition, by EDWIN HERBERT LEWIS, PH. D. The Macmillan Co., New York, 1902. pp. 292. Price, 60 cts.

Northern Hero Legends, by DR. OTTO L. JIRICZEK. Translated by M. B. Smith. London. pp. 146. Price, 40 cts.

The Capitals of the World. Historical and Descriptive. Edited by Henry W. Ruoff, M. A., D. C. L. Standard Home Reading Series. Springfield, Mass. pp. 160.

Laboratory Exercises in Physics for Secondary Schools, by GEORGE R. TWISS, B. Sc. Macmillan Co., New York, 1902. pp. 193.

The Story of Creation, by GIBSON C. ANDREWS. F. H. Word, Greenville, Ga., 1901. pp. 233.

Stories of Bird Life, by T. GILBERT PEARSON. B. F. Johnson Publishing Co., Richmond, 1901. pp. 236.

Medical Inspection of Schools, by HOMER W. ZIRKLE. Investigations of the Department of Psychology and Education of the University of Colorado. Arthur Allin, Editor. Published by the University, June, 1902. pp. 66. Price, fifty cents.

The Twentieth Century New Testament. A translation into modern English made from the original Greek. In three parts. F. H. Revell Co., New York.

Studies in Old Testament History, by JESSE L. HURLBUT. Eaton and Mains, New York, 1890. pp. 98.

A Critical Examination of Gordon's History of the American Revolution, by ORIN GRANT LIBBY. From the Annual Report of the American Historical Association for 1899, Vol. I, pp. 367-388. Washington, 1900.

Foundation Lessons in English Language and Grammar, by O. I. and M. S. WOODLEY and G. R. CARPENTER. The Macmillan Co., New York, 1902. pp. 166. Price, 65 cts.

Primer, by BENJAMIN N. BLACK. C. W. Bardeen, Syracuse, N. Y., 1902. pp. 72. Price, 20 cts.

Eine neue Methode zur Bestimmung der Harnstoffe im Harne.

Ein einfaches Verfahren zur Bestimmung des Ammoniaks im Harne, von OTTO FOLIN. (Zeits. f. Physiol. Chemie, Bd. 32, Heft 6.) K. J. Trübner, Strassburg, 1901.

On the Quantitative Determination of Total Sulphates in Urine, by OTTO FOLIN. Reprinted from the American Journal of Physiology, April 1, 1902.

Ueber die quantitative Bestimmung der Harnsäure im Harn, von OTTO FOLIN und PHILIP A. SHAFFER. (Zeits. f. Physiol. Chemie, Bd. 32, Heft 6.) K. J. Trübner, Strassburg, 1901.

On Phosphate Metabolism, by OTTO FOLIN and PHILIP A. SHAFFER. Reprinted from *The American Journal of Physiology*, April 1, 1902.

Fifty Years a Teacher, by BARNEY WHITNEY. C. W. Bardeen, Syracuse, 1902. pp. 76.

Black's Graded Readers. Primer. pp. 72. First Reader. pp. 107. By BENJAMIN N. BLACK. C. W. Bardeen, Syracuse.

The Satire of Seneca on the Apotheosis of Claudius. A Study, by ALLAN PERLEY BALL. The Columbia University Press. The Macmillan Co., New York, 1902. pp. 256.

My First Year's Work. An Actual Experience. C. W. Bardeen, Syracuse, 1902. pp. 40.

The Deeper Teachings of Plant Life, by HUGH MACMILLAN. Thos. Whittaker, New York, 1903. pp. 386.

The topics here give a very good idea of this work, which is not botanical but simply a collection of popular studies showing points of beauty and interest about some common trees and flowers. The chapters are as follows: poetry of plants, cyclamen of the Holy Land, daffodil, wood-sorrel, violet, primrose and cowslip, butter-bur, crown of grass, herb Robert, glaze on the flower of the buttercup, globe-flower, plantain, lopsided leaf, Bible trees, runes of nature, sacred ash-tree, foxglove, roses of Subiaco, grass of Parnassus, bluebell, symbiosis; or co-operation in the plant world, withered leaves, cranberry, in a nutshell, arbor day.

Special Method in the Reading of Complete English Classics in the Grades of the Common School, by CHARLES A. McMURRY. The Macmillan Co., New York, 1903. pp. 254. Price, 75 cts.

The subjects treated here are the educational value of literature, the use of masterpieces as wholes, literary material for the five upper grades, class-room methods in reading, the value of classics to the teacher. A valuable list of books for pupils and teachers occupies the last twenty pages.

Real Things in Nature. A reading book of Science for American boys and girls, by EDWARD S. HOLDEN. The Macmillan Co., New York, 1903. pp. 443. Price, 65 cts.

This is an interesting experiment to introduce scientific material as the substance of a school reader. The book is copiously illustrated and attempts to give young children a pretty complete, general view of the world. Its object is declared to be to teach ideas and facts. Despite the author's disclaimer, it is a new and interesting scheme.

The Elements of General Method Based on the Principles of Herbart, by CHARLES A. McMURRY. The Macmillan Co., New York, 1903. pp. 331. Price, 90 cts.

This is a new edition, revised, and enlarged treating the aim of education, the relative value of studies, interest, correlation, induction, apperception, the will, Herbart and his doctrines. This is perhaps the best exposition of the author's standpoint and is a very valuable book for teachers.

The English Language. The introduction to the principles which govern its right use, by FREDERICK MANLEY and W. N. HALL-MANN. C. C. Birchard and Co., Boston, 1903. pp. 447.

This book is written to hasten the day of the full emancipation of

the English language from grammar and the needless study of needless distinctions. It seeks to stimulate thought and feeling rather than to dwell upon the technicalities of speech. It is, however, a grammar of a very modern kind treating, especially, the parts of speech, phrases, etc.

The Rational Memory, by W. H. GROVES, Gloucester, Va., 1901. pp. 115.

This is a new and interesting edition of an effort to help and to systematize the work of memory. The author shows little acquaintance with the recent experimental studies of the subject, but his aim is chiefly to facilitate the process of recollection, and the book is best classified as a mnemonic system. As such, it certainly has advantages and cannot fail to be of practical service.

Queen Moo's Talisman. The Fall of the Maya Empire, by ALICE DIXON LE PLONGEON. K. Paul, Trench, Trubner and Co., London, 1902. pp. 86.

The wife of the famous Yucatan explorer, who believes that the institutions and art of Egypt were derived from this country, has put into poetry perhaps the most important of the old traditions of this people. Her poem is beautifully illustrated by many cuts showing figures and architectural buildings that shed light upon her theme. It is certainly a unique, bold, and, we think, successful effort to re-edit to modern taste a section of the ancient traditions of a famous people.

The Story of the Greatest Nations from the Dawn of History to the Twentieth Century, by EDWARD S. ELLIS and CHARLES F. HORNE. Parts 41-44 inclusive. Price, 25 cents each. F. R. Niglutsch, New York.

This great work shows no sign of deterioration as its parts succeed each other. It ought to be indispensable in the library of every school where history is studied. Perhaps nowhere has the picture element been better brought out.

The Reforming Work of the Tsar Alexander II and the Meaning of the Present Development in Russia, by PAUL VINOGRADOFF. Reprint. Univ. Press, Cambridge, 1902. pp. 40.

Wergeld und Stand, von PAUL VINOGRADOFF. H. Böhlau, Weimar, 1902. pp. 192.

Educational Manual Training Paper Folding, by WM. C. A. HAMMELL. B. F. Johnson Publishing Co., Richmond, 1903. pp. 45.

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